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THE GRAYING OF NATIONS II

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UNITED STATES SENATE

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THE GRAYING OF NATIONS II

FRIDAY, JULY 12, 1985

U.S. SENATE,
SPECIAL COMMITTEE ON AGING,
New York, NY.

The committee met, pursuant to call, at 9:05 a.m., at the Mount Sinai Medical Center, Stern Auditorium, Annenberg Building, Fifth Avenue and 100th Street, New York, NY.

Present: Senator John Glenn, presiding.

Also present: Diane Lifsey, minority staff director; Terri Kay Parker, general counsel; and Eileen Bradner, minority professional staff.

WELCOMING REMARKS OF DR. JAMES GLENN, PRESIDENT, MOUNT SINAI MEDICAL CENTER, NEW YORK, NY

Dr. GLENN. Ladies and gentlemen, good morning.

I would like to welcome you to this very special and important meeting, an occasion that I think is certainly unique for Mount Sinai and perhaps unique for the public in general.

The world is increasingly aware of the necessary concerns in the area of aging.

We welcome this special Senate committee and Senator John Glenn to Mount Sinai Medical Center, and I want to say that Mount Sinai takes great pride in the fact that so many distinguished people have joined us today for what we feel to be an extremely important enterprise.

We are certainly aware, here at Mount Sinai, of the importance of planning in the realm of aging, and in dealing with our increasing elderly population.

Witness to our concern is the fact that Mount Sinai School of Medicine has established the first department of geriatrics and adult development, in any medical school in the United States. We are very proud of the fact that the incumbent chairman of that department, Dr. Robert Butler, is the former director of the National Institute on Aging, bringing with him a global perspective of the problems that accompany aging, not just medical, but societal, political, and economic as well.

It is clear that Mount Sinai would like to join with the public in general, in finding ways of productive utilization of what we must regard as a national resource, a worldwide resource, and that is our elderly population.

I think it is probably timely that we begin a redefinition of what constitutes old age, because clearly the advances of medical technology, the application of medical sciences over the last three dec-

ades has rendered old age quite a different thing than it was 30 years ago.

In the last 30 years the medical advances that can be cited repetitively, have resulted in a halving of the age-adjusted death rate. This reflects the advances that medicine has made, particularly in the realm of the three major killers; cancer, heart disease, and stroke. In virtually every instance, the death rate from these diseases has diminished. We still have much to do.

But it is clear that medicine is now providing an environment in which our population can expect to live to its full, biologic potential, which may be 90 or 100 years.

Our challenge, thus, is to find ways in which we can usefully employ this resource, our older population.

We welcome the opportunity to have you with us today. We know that this will be an informative, enlightening, productive, and stimulating conference; something that we hope will be a springboard toward greater advances in our understanding of and management of problems of the elderly.

I would extend a very cordial personal invitation to Senator John Glenn, and admonish you in the beginning that there is no familial collusion in this meeting.

We are happy to have him with us and to have this Special Senate Committee.

Mount Sinai Medical Center, its trustees, its faculty, and its staff, all extend a cordial welcome to each and every one of you.

And now Senator Glenn.

OPENING STATEMENT BY SENATOR JOHN GLENN, PRESIDING

Senator GLENN. Thank you very much, Doctor, I appreciate that introduction very much.

I guess I should have brought the gavel with me here and gaveled the meeting to order as we usually do in the Senate, because what some of you may not be aware of is that this is an official hearing of the Senate Special Committee on Aging.

We have had a series of these hearings, not only in Washington but in different parts of the country, looking into some of the various problems and we are glad to be having one here today.

All of the testimony here today and all of the information that we take back will be made part of the official hearing record and will be useful to Senate staff and to other Senators in Washington, as well as those working on some of these same problems in the House of Representatives.

So I do appreciate that introduction very, very much, and in view of the hospitality that our host city has shown us and has given us, and the hospitality provided to us by Mount Sinai, on behalf of each and every one of us on the committee, I can say at this point that we do love New York, Doctor.

We are especially grateful to everyone here at Mount Sinai Medical Center and particularly to you, Dr. Glenn, for making this excellent facility available to us.

Despite the fact that Dr. Glenn and I are not related, as he mentioned, we do share one thing. He has helped me out in the past more than he probably is aware of himself, because Jim's lovely

daughter, Sara, worked for me in my Senate office in Washington for several years. I can tell you from first hand experience that creativity and compassion and enormous talent clearly run in the James Glenn family.

I also want to offer a very special welcome and appreciation to Dr. Robert Butler, who is here on the platform with us this morning, and thank him for his work in planning and organizing today's hearing, just as he helped this committee's first Graying of Nations hearing back in 1977. For most of you, Dr. Butler truly needs no introduction, because I think probably more than any other individual in this country, and possibly even throughout the world, Bob has been responsible for making people aware of the problems faced by the elderly. He has done this through his accomplishments as the first director of the National Institute on Aging and now as chairman of geriatrics and adult development here at Mount Sinai and perhaps of equal importance through his authorship. In fact, it was so notable that he won the Pulitzer Prize for his book titled, "Why Survive? Being Old in America." Through all of these tireless efforts and activities, Dr. Butler is helping insure a better life for the elderly today and into the future.

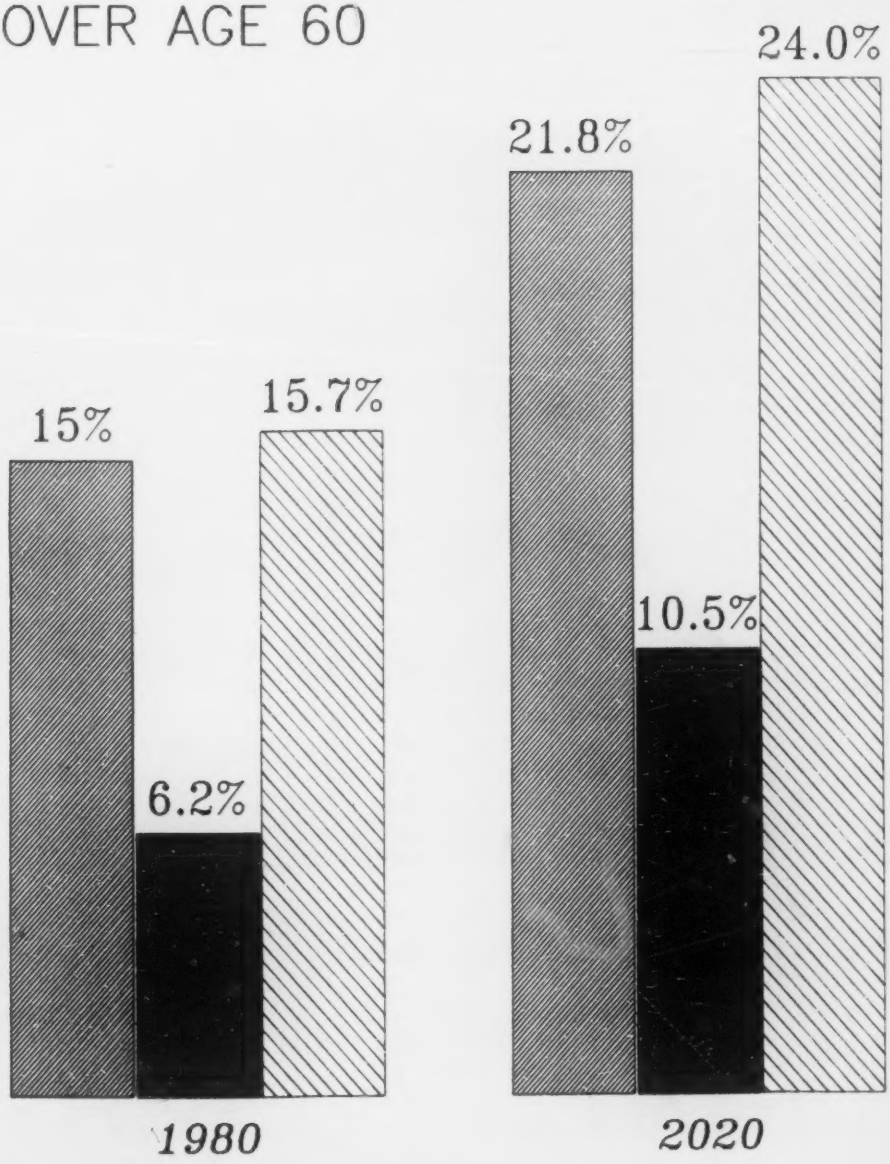
Over the past year, as the senior Democratic member of the Senate Special Committee on Aging, I have been holding hearings, most of them back in my home State of Ohio, on "Women in Our Aging Society." In these hearings we are examining the changes taking place in work and retirement, in health care and family and community life, with special emphasis on how these changes affect women. Although the problems associated with aging obviously affect men as well, I focus my hearings on women for the one very simple reason, and that is that in the United States today women outlive men. American women now make up 60 percent of those over the age of 65 and 70 percent of those over 85. Now, all of us, and especially those of us with Y chromosomes, hope that the survival rate for men will indeed improve substantially in the years ahead. But in the meantime, we must pay particular attention to how today's gender gap affects our planning.

In the United States, we know that the average age of our population is increasing. Indeed it is in most nations around the world. Presently only 12 percent of the U.S. population is over 65, but by the year 2000, just a few years down the road, that figure will have risen to 13 percent and in 2020 it will be over 17 percent. I suppose that most of you are not too surprised by those figures, but I know that I was surprised and even startled by a number of other statistics recently projected by the U.S. Census Bureau.

Let me show you a few of these startling statistics. The first chart shows the percent of the total population in more developed and less developed countries and the United States in the years 1980 and 2020. What we see here is a substantial increase in older people in every nation, with the largest increase occurring in the less developed nations.

CHART 1

PERCENT OF TOTAL POPULATION OVER AGE 60

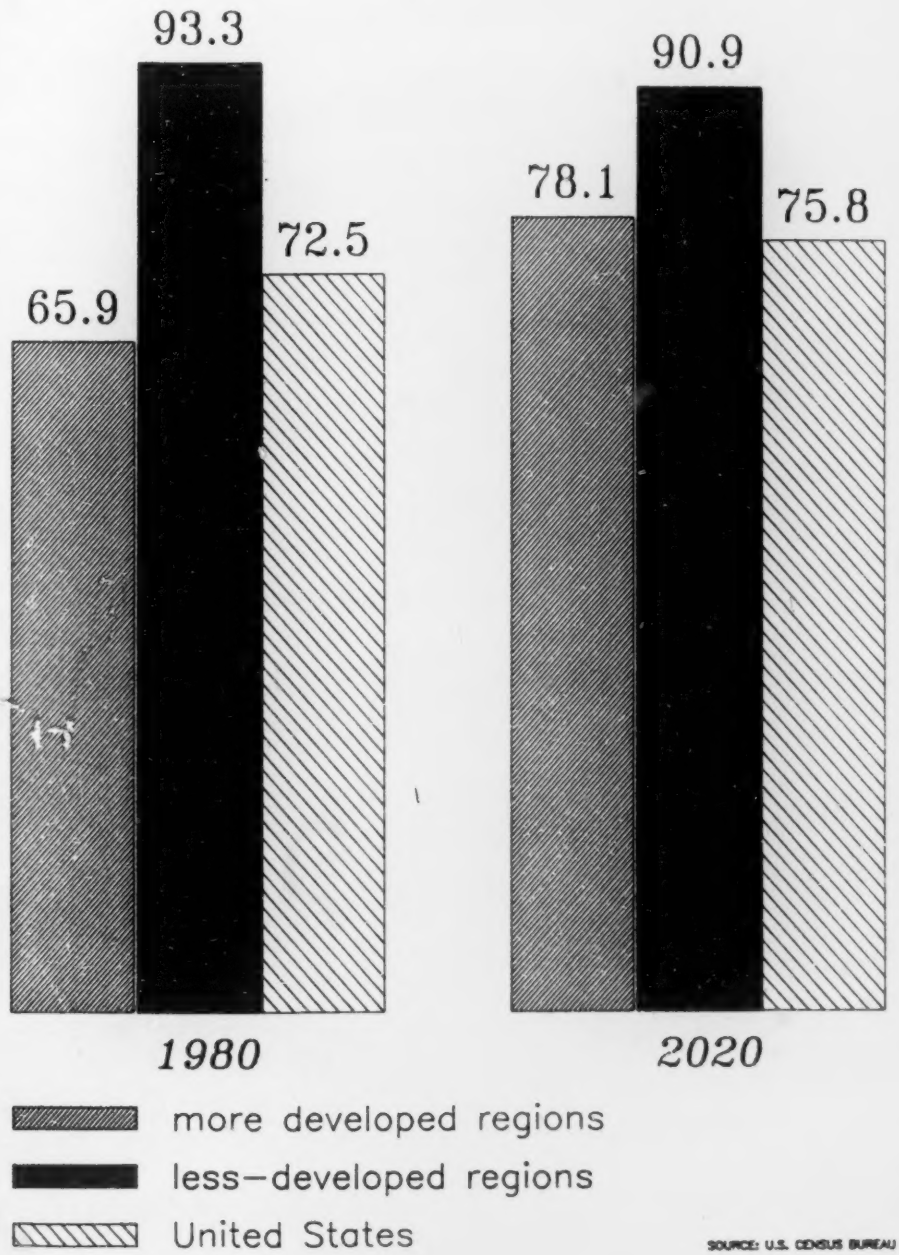


SOURCE: U.S. CENSUS BUREAU

Now in the second chart, we see the proportion of men to women among the same populations and the same years. As living standards increase in the less developed countries more women survive and the ratio of men decreases. While in the United States and other developed countries, more men will enjoy longer lives. Now, this ratio presents in graphic form one of the persistent questions on aging research: Why do women live longer than men?

CHART 2

MALES PER 100 FEMALES FOR THE POPULATION AGE 60 AND OVER



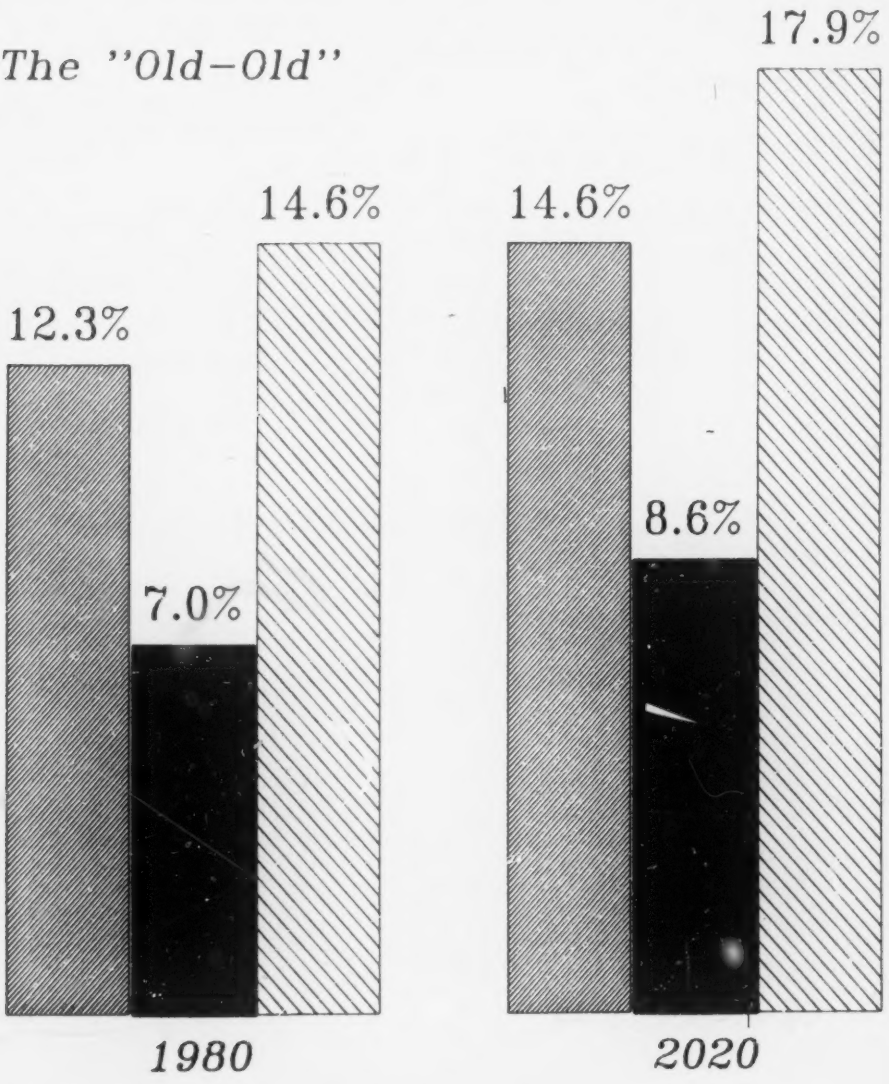
SOURCE: U.S. CENSUS BUREAU

On chart 3 the "old-old," those 80 and over, are of special concern for us. Their numbers will increase dramatically in the next 35 years, and the challenge is primarily in the more developed regions. Now we know that the old-old, and perhaps we could get a better term for that, but we know that the old-old need more care and services and that families are less able to care for them. In fact, in our own Nation here, we note the statistics that of Medicare expenditures, 40 percent of the expenditures under Medicare go to people in their last year of life, which just goes to back up that statement that the old-old need more care and services and that families are less able to care for them.

CHART 3

PERCENT OF ELDERLY POPULATION WHO ARE AGE 80 AND OVER

The "Old-Old"



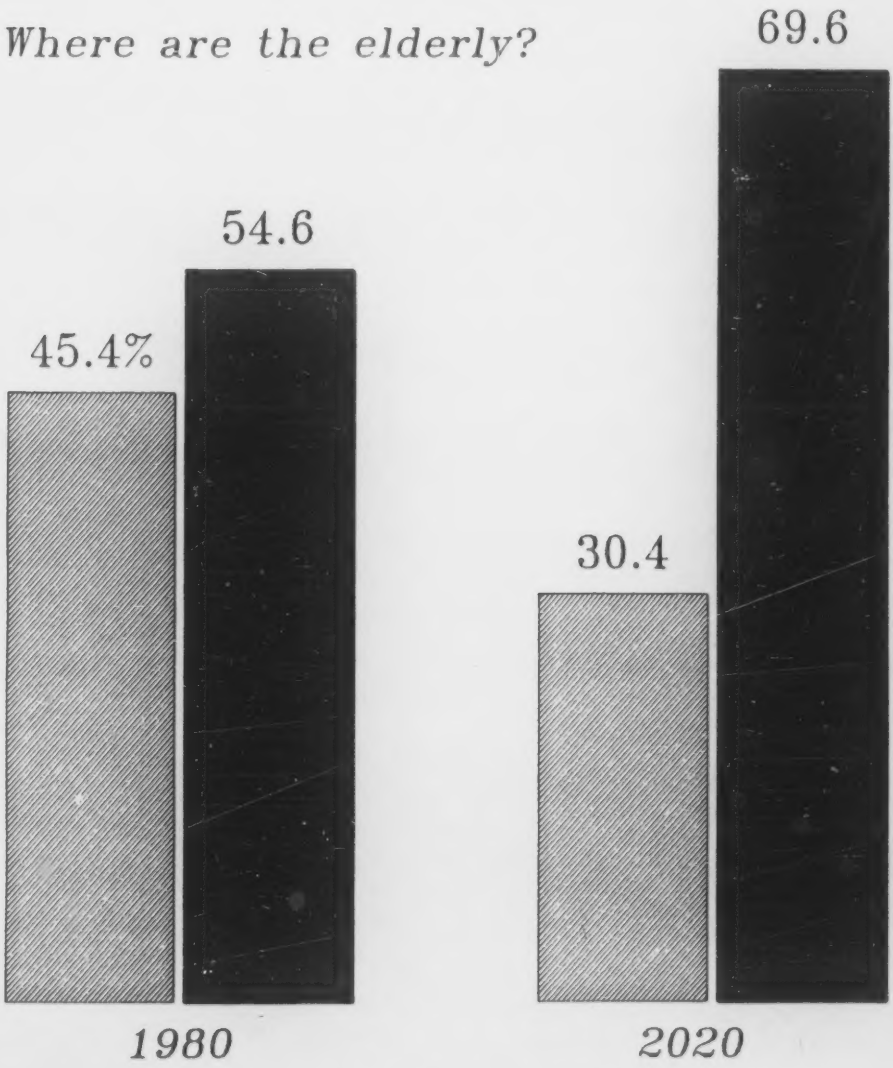
SOURCE: U.S. CENSUS BUREAU

Finally, the last chart, chart 4, shows us where the elderly of the world live. At present the difference in distribution between more and less developed regions is only about 10 percent. You know 60 to me is not a magic number on saying when people get old or 65. But by 2020, a very substantial majority of those over 60 will live in the less developed regions of the world, and those are the regions where aging poses great challenges for all of us. We are going to need the very best expertise, the very best knowledge, and the very best foresight that we can to develop preparations for this future that we look forward to.

CHART 4

PERCENT OF THE OVER AGE 60 POPULATION BY REGION

Where are the elderly?



SOURCE: U.S. CENSUS BUREAU

Now, what all of these charts and figures tell us is that sooner or later virtually every nation in the world will be faced with a population that is increasingly older. We know or can offer educated guesses about what that may mean from a public policy perspective, what we are faced with in Washington and what other capitals around the world face from a public policy standpoint. But what it will mean for the individuals themselves is really far less clear. We may be tempted to envision the future with half the population in wheelchairs or nursing homes, unable to care for themselves or contribute to the society that they live in. But that would be unrealistic and it would be unfair. Before we automatically assume that greater years mean lessened ability to contribute, we ought to remember just a few historic examples of some individuals. Verdi, for instance, wrote his famous Ave Maria at the age of 85. Margaret Mead undertook a field trip to New Guinea at 72, some 48 years after her first visit. Konrad Adenauer served as Chancellor of West Germany until he was 87. Mahatma Gandhi remained the moving force behind India's drive for freedom until he was cut down by an assassin at 78. Michaelangelo worked at his sculptures until the day that he died at the age of 89.

Now, you may say that these were unusually gifted and exceptional people and you would be right, but these examples are also proof positive that creativity, freshness of ideas and the power to influence one's society need not vanish with age. We want productivity in the senior years to be the norm and not looked at as the exception as those examples that I just gave might be interpreted.

In fact, a few years ago, the public opinion pollster, Lou Harris, conducted a survey of over 2,800 people who were age 65 or older. According to Mr. Harris, what older Americans were saying was this, and this is a quote out of one of his reports:

> Give us less pity and more opportunity. Give us respect, not simply for having lived so long, but respect born out of what we are and still can be. Do not count us out. Do not put us on the ash heap, wringing your hands all the way to the graveyard about our aging miseries.

Now, in other words, the challenge before us, all of us, is not just to help people live longer lives, but to give them the opportunity to live better and fuller lives. How do we do that? The American labor leader and philosopher Eric Hoffer said: "The only way to predict the future is to have the power to shape the future." You and I know that shaping the future requires that we plan for it, we plan ahead, and planning for the future is exactly what we will be focusing on today. The future we know will bring new challenges as we deal with older populations in every nation. We will share information about how different societies are adapting to the changes brought about by their aging populations and how they are planning for the future. We will explore possibilities for promoting collaborative research and sharing breakthroughs. We will consider issues of the cost and responsibilities involved in caring for older people, all with the goal of improving the quality, not the mere quantity, of life for every person on Earth.

It is not accident that we are holding this hearing on the opening day of the 13th International Congress of Gerontology. Several thousand leading gerontologists from all over the world have come together here in New York to discuss "Aging: A Universal Human

Experience." We hoped that many participants in the International Congress would be able to join us and indeed we are privileged to have distinguished professionals from 12 nations appearing on our panel today. And, in that connection, I would like to especially recognize Dr. Svanborg and Dr. Hollander, Dr. Chebotarev, who participated in the first "Graying of Nations" hearing in 1977.

Our first panel this morning is made up of representatives of Western nations that are as much as 40 years ahead of the United States in the average aging of their populations. I believe that there are valuable lessons that we can learn from them concerning the care of the elderly. The dramatic increase in the need for health and social services, for instance, is a concern for individuals and families and governments faced with increasing health care expenditures.

As a U.S. Senator, I am especially interested in hearing from our panelists from Sweden, France, the United Kingdom, and the Netherlands about the best ways they have found to provide and pay for long-term care in homes, communities, and institutions, as well as about their effort to expand education and training in geriatrics and gerontology. Since I am believer in the benefits of health promotion for both young and old, and because I believe that it's never too late to start, I want to know how lifestyle changes and good health are emphasized in other countries and how these improvements may affect some of the chronic or debilitating conditions associated with old age such as arthritis and osteoporosis, heart disease, and cancer.

Joining us on panel II then will be Dr. David Macfadyen, manager of the World Health Organization's "Global Program for Health of the Elderly," and participants from Ghana, the People's Republic of China, Latin America, and the Caribbean, where dramatic increases in life expectancy and aging populations are occurring. And I look forward to hearing how these countries are preparing for changes that are taking place, especially the changes in family structure that are coming about, due to younger people comprising a smaller share of the population and more migration of young people from rural to urban areas. The issue of families is important also—some of us tend to think that there has to be a Government program, that we have to have some planning at either the city or the State or the Federal level for every program and for every problem. But the issue of families is important to us because families provide the greater part of the care of the elderly, and that's true both in industrialized and developing nations. So we need to support family care givers and can, I believe, learn much from each others' experiences. I also look forward to discussing Ambassador de Alvarez's proposal, to focus more global attention on the elderly by establishing, in effect, a UNICEF for the elderly within the United Nations—UNIFA. U-N-I-F-A, United Nations Institute for the Aged.

Later this afternoon we will discuss aging research with doctors from Hungary, Japan, and the Soviet Union. Aging research, as distinct from disease-specific research, is aimed at understanding the biological causes of aging that predispose us to disease in our later years. Through aging research and longitudinal studies, an important tool in which researchers study large numbers of reason-

ably healthy people as they grow older, we are attempting to answer questions like these: What is normal aging? How can we reverse, or alter, or minimize the aging process? How can we assist body systems weakened by aging? Why is there a difference in life expectancy between men and women? International studies and cooperation can help us to answer those questions.

For our wrap-up witness this afternoon, we are most privileged to have Dr. T. Franklin Williams. In his position as Director of the National Institute on Aging in Washington, Dr. Williams is well aware of the problems associated with disease that afflict the elderly. He is also aware of the importance of understanding the biology of aging and the need to increase funding for research education and training in geriatrics and gerontology. I look forward to hearing Dr. Williams' thoughts on these and other subjects in light of the demographic changes that we are facing and the international perspectives we have gained today.

Several years ago, an American playwright named Paul Green wrote: "The Sun setting is no less beautiful than the Sun rising." He was right, of course, and we also know that to grow old is our common human destiny. In Washington a few days ago I was involved in a forum with New York Senator Jacob Javits, one of the giants when he was in the Senate in Washington, whether he agreed with every political position or not. I think that all of you in New York and from around the country are familiar with his fight against some of the ravages of old age. As he said at the forum, "We're all terminal. All of us are terminal. It's just a matter of time." And that's certainly true. But we hope that in that time that we have here, that this idea that the Sun setting is no less beautiful than the Sun rising can be carried out. To grow old is our common human destiny, and whether aging in the future will be a blessing or a curse depends on us and how we plan for it. I think that too often we tend to not deal with a problem until it's a crisis, until it's upon us. Then we want to rush out and to pass some legislation, start a program, do something.

My dad and mother were born around the turn of the century and at that time the life expectancy in this country was 49 years. Now it's about 71 for a man and about 78 for women, and if you get by 65, which I am approaching all too rapidly these days—there's another birthday coming up in a week or so—but if you reach that age of 65 then you gain about, I believe it's 14.8 years if you are a man and you gain almost 19 years if you are a woman. At 65 you can expect that much more life. That advance in our Nation is just since 1900 in the lifetime of my dad and mother. This is not stopping, it's going up. It's going up at increasing rates.

So the point is this, let's not wait until this gets to be a crisis. Let's look at it and say that we realize what's happening over the next 20 years or so. Now is the time to start planning, for learning more and cooperating with other nations in finding out what we can do to make a better future, and not wait until it gets to be a crisis. Make it a blessing, not a curse. And that depends on our ability to learn, to grow, and our willingness to act with concern and respect for one another and our determination to use our heart as well as our head in the choices that we make.

Today we will hear about the giant strides being made in health, in medicine, and in technology, and we also will be learning about how other nations are thinking about and planning for their future. And as we listen with our ears let us also hear with our hearts. Listen for the simple yet practical ideas that can make life more comfortable and satisfying for ordinary people in everyday life. Perhaps the path to that goal was pointed out best by the great American poet, Henry Wadsworth Longfellow. Late in his life Longfellow was asked how he was able to remain vigorous and write so beautifully. He pointed to a blossoming apple tree nearby and he replied:

> That apple tree is very old, but I never saw prettier blossoms on it than those that it now bears. The tree grows a little new wood each year, and it is out of that new wood that those blossoms come. Like the apple tree, I try to grow a little bit of new wood each year.

Now Ladies and gentlemen, none of us can stop the flight of time. But with wisdom and compassion perhaps we can help people to keep on growing a little new wood each year. And in that way we can insure that not just individuals but their nations and indeed our whole planet will keep blossoming in the decades ahead.

Thank you very much. Just a couple of housekeeping details first before we proceed with our first panel of witnesses.

First, out in the lobby we have some yellow comment sheets. We hope you will take those and after listening to the witness' testimony today, I encourage you to use those sheets and share your views with us—things that you agree with or don't agree with, other ideas that you may have apart from those views given by the panelists. At past hearings we have gotten some very excellent comments from the audience, people like yourselves who were interested in the subject and came in. You obviously have thought about this matter at some length or you probably would not be here today. So I encourage you to use those sheets and share your views with us.

At one of the hearings in Ohio just a short time ago, we had somewhere around 800 people who attended a particular hearing, and almost 300 of them had written comments. We went through those and found some very good suggestions for the committee to use and then included some of those suggestions in our committee report.

Even if you don't have specific comments, we would appreciate having your name and address so we can include you on our mailing list, if you would like to receive information about future committee activities or new publications.

Also in the lobby, we invite you to pick up any of the publications and legislative information from the Special Committee on Aging. We have got a number of them up there today. Included is a statement on the impact of Medicare and Medicaid budget cuts, the legislative proposal for geriatric education and training of health care professionals, and a publication on medication use by the elderly. We would much prefer to have you take those and put them to use rather than us carrying those publications back to Washington. So we hope that you will avail yourself of those publications.

To our panelists, let me make just a couple of brief introductions here also. Miss Janet Sainer, the commissioner of the New York City Department of Aging, is with us. Would you stand up, please?

Mr. Martin Janis, who was formerly the director of the Ohio Commission on Aging, I see him here in the audience. We work a lot with him back home in Ohio. Martin, we are glad to have you with us here today.

Dr. Frank Williams, who is the current head of the National Institute on Aging in Washington will speak this afternoon, but I want everyone to know that he is here. He will be with us this afternoon.

In the company that we are with today, I feel a little bit like costume jewelry at Tiffany's down the street. Because I am a rather frustrated doctor at heart myself. I started out with an interest in medicine; my son-in-law is a doctor, and my son is a doctor. Years ago when I was still in the space program in Houston, one of my good friends was Dr. Michael DeBakey, the heart surgeon. He used to invite me in every once in a while when he had some new technique, and I would scrub with him and stand on a little stool behind him and watch him do his operations. I have done that probably 25 or 30 times. I watched him do a kidney transplant once too.

So this idea of medicine and the problems of medicine and particularly those of the aging are something that I have had a long, long interest in. To have the experts in these fields, the world's experts with us here today, is almost humbling to me because they have dedicated their lives for these purposes and pursuits. I envy their efforts as a matter of fact. I guess we all want to live several lives at the same time. I have had a rather eventful life and I wouldn't go back and take a lot of things back. But, I still regret not having had a more personal involvement in medicine, not going through medical school and doing some of these things myself.

So to me it is rather humbling to be here today and have the chance to share views and hear the views of those who are doing lifetime work in these fields.

We welcome our first panel, and ask that they come up please and take their places—Dr. Alvar Svanborg of Sweden; John Grimley Evans—Dr. Grimley Evans from the United Kingdom; Dr. Françoise Forette of France; and Dr. Carel Frederick Hollander of the Netherlands.

I will introduce them as they each speak. Dr. Svanborg will be our first speaker this morning. He is chairman, director, and professor in the department of geriatric and long-term care medicine at the University of Goteburg in Sweden. He has been involved in education research efforts in the medical and gerontology fields for more than 30 years. He also served as physician in chief and head of the University Clinic of Geriatric and Long-Term Care Medicine at Botha Hospital. Among his many international activities, Dr. Svanborg participated in the Aging Committee's first hearing on "The Graying of Nations" in 1977 and was the Swedish delegate to the U.N. World Assembly on Aging in 1982. I don't have to say much more, because I think you all know Dr. Svanborg. I know that he has been to nearly all of the countries represented at our hearing today, to participate in seminars and lectures on aging.

So Doctor, we welcome you. I would say that before you start your presentation—this isn't directed just at you, but at all of our panelists today—we hope that you can keep your statements reasonably short, so that we will have time for questions and answers and discussion.

Before we go to the first panel, I want to introduce Dr. Butler. He has some remarks to make. Dr. Butler, as you know, was our first Director of the National Institute on Aging in Washington and that's where I got to know him. Dr. Butler certainly needs no introduction here at Mount Sinai. He's one of the world's leading experts on problems of the aging and the elderly. It's a real pleasure for me to be here with him today.

Thank you.

STATEMENT OF ROBERT N. BUTLER, M.D., CHAIRMAN, DEPARTMENT OF GERIATRICS AND ADULT DEVELOPMENT, MOUNT SINAI SCHOOL OF MEDICINE, NEW YORK, NY

Dr. BUTLER. Shucks Senator, I always wanted to be an astronaut.

Senator Glenn, many friends in the audience, and certainly many friends from overseas who are part of this program this morning, as Senator Glenn made very clear, we must begin with a new premise, a new geopolitical equation that this century is one of demographic transformation. For the first time in human history, there has been a major increase in average life expectancy, a triumph of survival. In the industrialized nations, an average of 25 years, a quarter of a century, nearly equal to what had been attained the preceding 5,000 years.

This triumph poses a special challenge to all societies, regardless of their political and cultural configuration, independent on the socioeconomic system in which they operate and superimposed upon the still extraordinary global population growth.

This demographic challenge I have called the longevity revolution. And the word revolution is an appropriate one, a fundamental change. There are still many years of life that could be had, as we describe, as Senator Glenn did, further advances in medicine. This revolution is not only a function of industrialized nations, but happily of all nations, because of the great reductions in maternal, childhood, and infant mortality rates, as well as the late life falls in death from heart disease and stroke. Indeed, by the year 2000, 60 percent of all people over 60 will be living in the developing world.

Senator Glenn was most enthusiastic in the leadership of the occasion of the 1977 first hearings on "The Graying of Nations." As he pointed out, today marks the very important beginning of a new International Congress of Gerontology. I would pause to remind you of the first one that was just 35 years ago in 1950. We are talking about an emerging new body of knowledge, a new perspective when we talk about gerontology and geriatrics. Yet there has been considerable progress, not only in fundamental research, but in meeting the social challenge. Most nations of the world have made some important steps in providing social security and access to health care. We do have a long way to go. But it is my hope that certainly no society will turn its back upon its elders.

Great skill in the exercise of judgment and the allocation of resources, social imagination, and personal commitment are essential as we move toward this extraordinary change in our society. Older people, after all, do not constitute some separate group, them or they, they are us, each and every one of us. And if I had to say what's been the most difficult part of my career in this field over the past 30 years, it would be the fact that it's so difficult for people to make that linkage between their present self and their future self. The painful realizations associated with confronting one's own aging and one's own death. Denial becomes a very potent force.

We have had here, over the last 2 days at Mount Sinai, excellent meetings organized by the World Health Organization and the National Institute on Aging, looking at that precious, important topic, the creation of leadership and training in geriatrics and gerontology.

One of the plenary sessions, Sunday night, is one that might be of interest to this audience, "An Evening With Distinguished Elders." An evening in which representatives of thinking, judgment, wisdom, will be speaking to some of the larger questions confronting human kind.

International discourse and exchange can be invaluable. In 1982, in the summer in Vienna, Austria, was held the United Nations World Assembly on Aging. Out of this came an International Plan of Action, an excellent one, not receiving the amount of attention that it should receive.

The hearings today, I am not going to prefigure, because it's important that we move directly to them. But I would close by indicating that we must have the contributions from government, such as are led by Senator Glenn, the contributions from the private sector, which means in many places of the world family, individual, community, state, or provincial government, and in our country and in some nations of the corporations and foundations which can do so much to make it possible for us to now, not 20 or 30 years from now, but now while there's time, to appropriately prepare for the increasing numbers of older persons.

Mr. Chairman, it is most ambitious and wise of you to take advantage of this occasion of the meeting of the International Congress of Gerontology, to invite these outstanding people to speak here.

I thank you for that, and I know that we can all learn from one another.

Thank you.

[The prepared statement of Dr. Butler follows:]

PREPARED STATEMENT OF DR. ROBERT N. BUTLER

We must begin with a new premise, a new geopolitical equation that this century is one of demographic transformation—for the first time in human history there has been a major increase in averaging life expectancy, a triumph of survival.

This triumph poses a challenge to all societies regardless of their political and cultural configuration, independent of the social economic system in which they operate and superimposed upon the still extraordinary global population growth.

The demographic challenge, this longevity revolution, and I do not use the word "revolution" lightly for it means a fundamental change—requires cultural transformation and new social policies.

The Irish playright George Bernard Shaw said that from the point of view of civilization man is but a mere child, he does not live long enough.

Now in this century there has been a 25 year growth in average life expectancy. There are still many years of life that may be attained to achieve the natural inherent lifespan of humankind, to experience the full life.

This revolution is not only a function of industrialized nations because, happily, the great reductions in material, childhood and infant mortality rates and the late life falls in deaths from heart disease and stroke are occurring throughout the world. Indeed, by the year 2000, it is projected that 60% of all people over 60 will be living in the developing world.

In 1977 it was my pleasure while serving as Director of the National Institute on Aging to help organize and participate in the first U.S. Senate Hearing entitled "The Graving of Nations." This is the second. In 1977 Senator John Glenn was among the several Senators who participated enthusiastically in this effort to bring together thoughtful and major leaders in the field of aging from around the world. Many of those same leaders are participating in this second hearing today.

This official U.S. hearing is occurring on the day which marks the beginning of the 13th International Congress of Gerontology. The first such Congress was held 35 years ago in 1950. This fact reminds us of how new are the fields related to aging and how limited still are the developments of gerontology and geriatrics as well as social and health policies regarding age. We are only at the beginnings, in part because we have only been forced to wrestle with the challenge recently with the advent of fiscal and resource constraints.

But we are making progress in most societies of the world which have created some form of Social Security to assure income for people in old age and have provided some kind of health care security, broadly defined to include social supports as well.

But no society has a perfect system and all wrestle with budgetary and resource allocation while confronted with the further unprecedented increases in absolute number and relative proportions of older persons.

It is my hope that no society will turn its back upon its elders. Thus they will have to exercise great social imagination, policy changes and political skill in the distribution of resources among the generations.

For after all, older people do not constitute a separate group, different from "us"; in short, today's older people were yesterday's children and today's children are tomorrow's older persons.

It is this linkage between our present and future selves, however, that is so difficult for humankind, to accept. Were I to state the single greatest obstacle to dealing with aging and establishing policies, e.g. changes in medical school education, that I have experienced in my thirty years in this field it would be the great difficulty that people have confronting their own aging and death. This must change because denial brings great risk while open acceptance that leads to considered action can make the difference as we can try to match the lengthening of life with an enhanced quality of life.

These hearings not only begin on this first day of the International Congress of Aging but follow a day and a half of important meetings convened by the World Health Organization and the National Institute on Aging. Leaders of research programs in aging from the six great regions of the world have joined in excellent discussions. These sessions were devoted to developing ideas about training and education. It is essential that all societies begin to teach the professionals, the volunteers and the public at large to better understand the character of human aging and the complex, interacting and multiple psychosocial and physical problems that frequently occur.

One of the plenary sessions of this Congress will occur Sunday night. There will be a symposium, An Evening with Distinguished Elders of the World. Five European, American and Asian personalities will represent the greatness that old age can bring, the wisdom that we find so difficult to measure. We do not always appreciate the concern for posterity, generosity of spirit, and the brillance of thought of older persons. This symposium will deal with some of the larger questions that confront the world and the human condition—the roles of older persons, the issues of peace.

International discourse and exchange can be invaluable. In the summer of 1982 the United Nation held a great Assembly on Aging with 123 nations represented. This conclave created an International Plan of Action which is excellent but has not received the attention it deserves.

The Hearings today endeavor to select some but not all major topics that have to be dealt with, e.g., education and training, and research. Without the discovery and application of new knowledge, we remain trapped; for example, without solutions to

broken minds as reflected in Alzheimer's disease and broken bones as reflected in osteoporosis we destine great numbers of older persons to calamatous old age. There will be increasing numbers of decrepit and dependent elders as societies move into the next century.

Research breakthroughs, however, will reduce the duration and the extent of dependency before death. To markedly abbreviate dependency and maintain vigor is the central task for gerontology and geriatrics and social policies focusing on aging.

We have now moved beyond the historic perhaps heroic period of beginning gerontology and geriatrics to a time of potential intervention, of prevention, treatment and rehabilitation of the many maladies of age and even, in some measure, intervention into manifestations of the aging processes themselves. What an extraordinary step.

Humankind has moved to conquer space. Senator John Glenn, America's pioneering Astronaut, illustrates such beginnings. Now we shall move toward the conquest of time, a frontier that mankind has always dreamed about.

Although an extension of life gives us all more time to season, to build experience, to create, age alone, of course, does not make us wise. But it is very difficult to be wise without age.

Today you will hear varied discussions—about scenarios of the future from the Netherlands, the impact of urbanization and industrialization in Africa, recent research progress in Japan and aging in the People's Republic of China where soon, if not already, 1 out of 4 of all the world's people over 60 are living and will live.

John Grimley Evans emphasizes three models of geriatric medicine. The "Integrationist" model perhaps deserving special consideration in this country.

He observed that "contrary to the fears of many . . . freely available statutory system in health and social services does not lead to a breakdown or withdrawal of family support and cohesiveness".

He also points out "the administrative separation of health and social services is the constant source of problems in many areas".

Forette reviews the fact that France is the first "aged country" whose "graying" goes back to the early 19th century. Dr. Forette will describe the situation in France which has the first Cabinet Department and Secretary of Aging of any nation.

David Macfadyen and others highlight the importance of international cooperation in research and emphasize the great significance of aging research such as that in Hungary described by Edit Beregi and that in Japan described by Imahori.

Ms. Julia D. Alvarez focuses upon the need for an equivalent to UNICEF for the Aged. A remarkable idea.

Mr. Chairman it was most ambitious and wise of you to take advantage of the occasion of the meeting of this International Congress to invite these outstanding people to speak here. We can all learn so much from one another.

Thank you.

Senator GLENN. Thank you.

Thank you very much, Doctor. I appreciate those comments very much. We look forward to your participation today and to working with you on these matters into the future.

Dr. Svanborg, I should have waited to give your more detailed introduction until just before you were to speak here. I apologize for that, but that doesn't lessen the enthusiasm that I am sure the audience has for looking forward to your participation here, because you are one of the world's experts. We welcome you today and appreciate your comments.

I will give the introduction for each of the other participants as they prepare to speak.

Thank you.

STATEMENT OF DR. ALVAR SVANBORG, PROFESSOR AND CHAIRMAN, UNIVERSITY OF GOTEBORG, VASA HOSPITAL, GOTEBORG, SWEDEN

Dr. SVANBORG. First I would like to thank Senator John Glenn and the U.S. Senate Special Committee on Aging for this invitation to take part in this second hearing aimed at expanding our under-

standing of the ways different societies are adapting to the remarkable demographic changes of an increasing proportion of elderly in our societies. I am most pleased and honored to have received an invitation to act as the chairman of the first panel about European aging.

My presentation will not be only general statements about the situation in Sweden and in the Scandanavian countries, but will go more along the lines indicated by recent observations on research made on the elderly in Scandanavia.

Sweden happens to still be the oldest country in the world as far as the proportion of the elderly is concerned. About 17 percent of the elderly in Sweden today are 65 and above and according to available prognostic data, more than 20 percent will be 65 and above in the year 2025. As a matter of fact, it might come close to 23 percent of the population in the year 2025. That is the time when those who today at the age of 25 enter the labor market would have reached the age of 65, which at the present time, is the official retirement age in Sweden.

But it should at the same time be emphasized that the Swedish population is no longer the leader of the world in longevity. During the last 5 years the female population in Norway and Iceland have approached similar longevity. The rate of increase in life expectancy has, however, been much faster in Japan than in any of the Nordic countries since the 1950's. Even though registration of birth and death has been functioning well also in Japan for 100 years, possible gaps in Japanese birth records concerning early death at child birth at home have to be considered and might influence the absolute level of the longevity lines—the curves we are usually talking about. But such possible gaps, would, however, not influence the trend toward faster increase in the life expectancy in Japan than in Sweden.

I have recently had the pleasure to work with Japanese demographers and geriatricians in the department which is directed by Professor Imahori, who is with us today, in order to find possible factors for why it's so that the Japanese people now have passed all other countries as far as longevity is concerned. We had dared to write a publication, and that publication will appear very soon in the Journal for Acta Med Scandanavica.[1]

Like many other countries, life expectancy of females has successively increased and was, in 1984, no less than 79.9 years in Sweden. In men, life expectancy has for about 20 years, been rather constant. And as Senator Glenn mentioned, another striking, demographic change is also in Sweden the sex difference in longevity. (Compare the time when it has happened.) I would like to emphasize that in the year 1900, the sex difference in longevity in Sweden was 3 years approximately. In 1950 it was still 3 years. But since 1950 sex difference in longevity in Sweden has more than doubled. In 1980 it was close to 7 years.

In this context, I would like to show a slide that demonstrates the basic design of our longitudinal study of the elderly 70 year-olds, now followed up to age 83. I am aware that I won't have time

[1] See appendix, p. 154.

to go into the details. We have also compared groups representative of the total population in our city when they reached the age of 70; the first group born in 1901/1902 and the second born 5 years later then a third one born 10 years after the first group. And one fascinating conclusion is that we obviously are experiencing now a period of human history when changes in vitality and state of health occur so rapidly that we can demonstrate them by our techniques in the period of time at 5 years.

Table 1 shows direct evidence of positive differences between these 70-year old age-cohorts. I thought that nothing had happened with human intelligence since those days, but apparently, we are right now improving so rapidly that we can show it by the techniques we have within such a short period of time as 5 years.

I would also like to go down to this line, state of health. Even so, there are generally all of this slight differences in senior diseases. We have demonstrated rather marked differences. And so marked are the differences within such a short period of time as 5 years that we had to know about them in order to be able to plan adequately for the future of the elderly.

Happily enough, most of these differences are positive, meaning that it seems to be so that we keep our vitality and postpone bad health up to a later period of life.

But we also should be aware that modern research has said that there are also negative differences. The only real example of that is the density of the skeleton and the risk of getting hip fractures.

If we cannot do anything prophylactic in Gothenburg in the year 2000, we will have more than double as many hip fractures as can be explained by the aging of the population. We must find the cause for these negative trends and try to prevent them.

I would like to go back to the previous slide. This is another age cohort difference showing such marked differences in dental state—such marked differences within a 5-year period that we have to use these figures for ad quate planning of dental care of the elderly. We have not been aware of that state of change so far.

There is no obvious change in the genetic base of these cohorts. There has been no migration change that can explain these age cohort differences. One of the conclusions that we had to make and we have made is that these age cohort differences are caused by environmental factors. We have hesitated to draw this conclusion that we now dare do it. Previously, we have all not been aware that the life style and environmental factor can influence, for example, the occurrence of cancers, and the occurrence of pathological conditions. But as far as modern research shows today, environmental and lifestyle factors influence also the rate and manifestations of aging.

We can turn that around and say that when you now know that environmental factors influence vitality and health in such a profound way, you can also in a much more serious and constructive way start to talk about prevention postponement.

I would like to further show some figures on life expectancy for females—we all know now that the females are the strong sex from the medical point of view. But we see here that during 1970 to 1979 the age standardized mortalities have decreased for females by no

less than 19 percent. And further life expectancy after the age of, for example, 70, has increased.

But for males we have had an unchanged further longevity for at least more than two decades. But something positive has appeared in the last few years; namely, that the males have also started to further increase longevity and further life expectancy at age 70.

I would like to say something more of a statement here. It's some sort of ideology going around, at least in Sweden, and I think that is the case possibly also in other parts of the world today, that old people need only kindness and care and living at home. This is, of course, not true. In Sweden, in 1982 it was so that three-fourths of those who died and were females were above the age of 73; and three-fourths of those who died and were males were above the age of 66. That means that the majority of serious medical problems needing advanced medical resources appear nowadays at old age. This is of great importance to know for planning of care for the elderly. We need more knowledge in the field of gerontology and geriatric medicine. That is an urgent requirement that we plan for, more education and training in care for the elderly.

A further point concerning the need of care of the elderly in Sweden I have heard so many other doctors saying that if you really examined an old person you would find that all of them are sick in one way or another. We have many, many detailed studies, and we can say that among the elderly at the age of 70, at least, 40 percent are lacking symptoms that we can refer to any defined disease. The majority are more healthy than we have generally gathered. So, it is not necessarily so that old people also are sick.

It's also obvious that even if we want to care for the elderly in their homes, to provide long-term care at home, we must also be aware of the fact that there is a significant number of the elderly who really have advanced handicaps and need institutional care. These are figures that we have presented to our authorities in the hopes that they can use them for a more adequate planning of care for the elderly in the future.

Also, it's interesting to mention our observations that if we compare females born in 1901/1902 with those born 5 years later, it can be seen that the occurrence of handicap seems to be postponed with the female, but unfortunately, not in the male.

I would like to conclude that the studies performed on the Swedish population shows that aging is something much more dynamic than we generally have thought. Also, aging is influenced by environmental factors. We are really today interested in these possibilities for prevention. We have started a detailed study, an intervention study, of these possibilities and to what extent it will be possible to prevent disorders so when you start living a healthier life at such a high age as 70. But the results of this investigative study will be available from 1988 and onwards.

One of the preliminary conclusions of the intervention study is that it's not true that you cannot teach an old dog a new trick.

Thank you.

[The prepared statement of Dr. Svanborg follows:]

PREPARED STATEMENT OF DR. ALVAR SVANBORG

SOME STATEMENTS ABOUT SWEDEN AND THE POPULATION OF SWEDEN

I would first like to thank Senator John Glenn and the United States Senate Special Committee on Aging for the invitation to take part also in this second hearing aimed at expanding our understanding of the way different societies are adapting to the remarkable demographic changes with an increased proportion of elderly in our societies. I am pleased and honoured also for the invitation to act as the chairman to the first panel about "the European aging".

Sweden is today the oldest country in the world—as far as the composition of the population is concerned. About 17% of the population is at the present time 65 years or more (65+) and 7% 75+. According to available prognostic data more than 20% will be 65+ in the year 2025, i.e. at the time when those who enter the labour market today at age 25 will have reached the age of 65, the present official retirement age in Sweden.

It should, on the other hand, be pointed out that the Swedish population is no longer the leader of the world in longevity. During the last five years the populations in Norway and Iceland have approached similar longevities. The rate of increase in life-expectancy has, however, been much faster in Japan than in any of the Nordic countries since the 1950's. Even though registration of birth and death has been functioning well also in Japan for hundred years, possible gaps in Japanese birth records concerning early death at child birth at home have to be considered and might influence a comparison of the absolute levels of the longevity curves. Such gaps would, however, not influence the trend towards faster increase in the life-expectancy in Japan than in Sweden. I have recently together with Japanese demographers and geriatricians tried to make a comparison of longevity in the two countries and discuss possible causative factors for the difference between the two countries in rate of change in life-expectancy (Svanborg, in press 1985).

Like in many other countries life-expectancy of females has successively increased and was in 1984 no less than 79.9 years in Sweden. In men life-expectancy has since about 20 years been rather constant and about 72.5 years. At least since the beginning of this century females have lived longer than males. This sex difference in longevity was about three years in 1900 and had not changed markedly during the period 1900 to 1950. But since 1950 this sex difference in longevity has more than doubled and was in 1980 close to 7 years.

In this context I would like to shortly mention some of the observations we have made in our longitudinal, gerontological and geriatric study of 70-year-olds in Göteborg, Sweden (Rinder et al 1975, Svanborg 1977, Svanborg et al 1982, Svanborg 1983). In this context some of the cohort differences that we have observed by comparing the manifestations of aging and state of health of 70-year-olds born in 1901/1902, those born 1906/1907 and those born 1911/1912 might be of interest. At the present state of these cohort comparisons direct evidences exist for differences in: intellectual function implying an ongoing improvement in cognitive ability in the population of Gothenburg; height, bodyweight and body mass index; and state of health.

This statement is mainly based on small differences in many prevalence figures for a great number of definable disorders, like e.g. some cardiovascular disorders. The most marked cohort differences observed concerned oral health, implying a successive improvement in dental state (Österberg, Mellström 1985). There has also been a decrease in the prevalence of gall bladder disease and peptic ulcer treated surgically that does not seem be related only to change in the operation policy. There are on the other hand indirect evidences for an ongoing lowering of the density of the skeleton, at least in urban areas, with increased risk for hip fractures and also increased prevalence of certain joint disorders, namely clinical and roentgenological evidence for osteoarthritis.

A global evaluation of the consequences for vitality and of the hitherto observed cohort differences is, however, positive implying that there seems to be so that the Swedish population is preserving vitality a little longer and pushing bad health up to somewhat higher age. Such conclusions from our research studies have also recently been supported by the observations that the age matched mortality for females in Sweden has markedly decreased during the years 1970–79 for the age group 70–79 years old. The age matched decline has been shown to be no less than 19% in that age interval during the decade 1970–79. It should also be emphasized that although no obvious decline was observed for males during that period, an obvious trend both to increasing longevity and increasing further life-expectancy after

age 70 has been reported by the Swedish National Bureau of Statistics also for males after 1979.

It should also be stated that the observed age cohort differences, as far as can judge cannot be explained by changes in the genetic basis of our population. No obvious differences in migration rates have occurred between the studied age-cohorts. The observations thus indicate that life-style factors and the environment has influenced, and obviously still are influencing, not only state of health but also certain age-related functional abilities usually defined as manifestations of aging.

To what extent preventive/postponing measures really might further postpone age-related handicap and disease and possibly also compress the period of dependancy remains to be shown.

Even though we seem to live in an extremely challenging period of human history when dynamic and mainly positive age-cohort changes are observed we have obviously to be realistic about the fact that the majority of needs of care occur when we are old. In Sweden, only ¼ of those females who died in 1983 were below the age of 73. Thus ¾ of those who died were 73 years old or more. One fourth of the females who died were 85 years old or more. For males the comparable quartile figure of mortality age was 67. It is not uncommon that we have to listen to statements implying that old people should need only general care, kindness and a bed or at least care in their own home. We should, however, be aware of the fact that serious medical events in our life are more and more postponed and trend to occur late in life. With the exception of pediatrics and obstetrics most medical specialities are already faced with, and will apparently be so even more in the future, a situation when more knowledge in the field of gerontology and geriatric medicine will be urgently needed.

One problem that we are dealing with in most Western societies is the concrete plans for care and support of the elderly in our future societies. Let me just mention some studies we have performed concerning the need for institutional care of the elderly. How often will it in the future be possible to give the elderly an acceptable care and medical service in their own homes and avoid institutionalization?

Those responsible for planning of care for the elderly in Sweden have been aware of the fact that our studies of the occurrence of handicap and need of are indicate that the more advanced impairment disability and/or handicap related to age and need for institutional care seems to be lower in cohorts 2 and 3 for females than in the first cohort studied. Such an ongoing lowering of the need of care was not observed, however, for males.

Some recent studies in Göteborg have concerned real need of care of patients already treated in long-term care institutions. These studies implied at first a detailed survey of medical needs, need of care and nursing load already cared for within the nursing home sector. In Gothenburg, with about 430,000 inhabitants 18.2% of the population was 65+ on December 31, 1983. For these 77,000 people 65+ 2950 beds were available for somatic long-term care within geriatric clinics (705 beds) or nursing homes (2,200 beds). This survey of available long-term care beds (Rundgren, Casparsson 1985) showed e.g. that the patients of course were very old (mean age 83, range 31-106) with a majority (70%) of females. They had been handicapped for long periods of time and only 31% had any own home left. 78% suffered from urinary incontinence. Only 23% were without mental problems. Eighteen per cent were able to walk without assistance, 57% could not eat by themselves, 9% could manage without attendance during the night and about 40% had no regular visits of family members or friends. Although these figures might have indicated that very few really could have been treated at home instead of in the nursing home, planned intermittent re-admission was tried in a systematic of 210 patients in these nursing homes; one of the nursing homes was chosen for this intervention study. This extensive intervention program aimed at finding possibilities for patients within nursing homes to be intermittently treated at home. In such a way, the basic observations concerning the real need of these patients of long-term care should be illustrated in an elderly population in an urban area of Sweden. A global judgement of their need for medical service care and social support indicated that 10%, e g 21 of these 210 patients, would have been possible to send home if adequate home care was available. In Göteborg, this is the case since hospital based geriatric teams have been organized operating with homecare and a homeservice that can be delivered 24 hours a day. We were disappointed to find that among those 210 patients only 1 could stand and accepted to leave the nursing home and be cared for at home.

So, even though the mainly positive age-cohort differences we have observed might indicate that a representative group of population in an urban Swedish city today seems to preconserve vitality and postpone morbidity we do not for sure know if that period of life when we as elderly and old need social support and medical

service really will become shorter. As mentioned above we know also that especially the females, but nowadays also the males, extend their further life-expectancy after e.g. age 70 which might imply that the duration of the period of dependency will be the same although it will occur later in life. We hope, however, that these problems, of utmost importance for future societal planning in Western countries, will be illustrated in the coming years when we will succeed our epidemiologic studies of three cohorts of 70-year-olds in Göteborg, Sweden. I would like in this context to finally mention that to the third cohort an extensive intervention program has been added aimed at illustrating to what extent improved quality of life and more adequate medical service started at ages above 70 will have a positive impact on vitality, state of health and need of care of the elderly in Göteborg, Sweden.

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Figure 1

Year of birth	Year of investigation							
	1971/72	1976/77	1980/81	1981/82	1982/83	1983/84	1984/85	1985/86
1901/02 (H 70)	70 years	75 years	79 years		81 years	82 years	83 years	
1906/07 (H 70)		70 years		75 years				79 years
1911/12 (IVÄG)				70 years	70 years	72 years	72 years	

Senator Glenn. Thank you very much, Doctor.

I have 100 questions obviously, but we are going to go on with our whole panel and then we can have our discussion at the end of that time period.

Our next panelist is Dr. John Grimley Evans. Dr. Grimley Evans is from the United Kingdom. Few universities in this world are more famous than Oxford University, of course, and Dr. Grimley Evans is professor of geriatric medicine at the University of

Oxford. He is also a consultant physician in geriatric and general medicine for the Oxfordshire Health Authority.

So he has experience also in putting some of this theory into practice in public policy and in everyday use as part of that Oxfordshire Health Authority.

He is also active in British medical and geriatric societies, and we have asked Dr. Grimley Evans to discuss geriatrics and primary care in the United Kingdom.

Dr. Grimley Evans.

STATEMENT OF JOHN GRIMLEY EVANS, M.D., PROFESSOR OF GERIATRIC MEDICINE, UNIVERSITY OF OXFORD, UNITED KINGDOM

Dr. GRIMLEY EVANS. Senator Glenn, ladies and gentlemen, I would first like to express my profound gratitude for the honor of being invited to contribute to today's session.

I was asked to talk to the subject of the British system of geriatric medicine and primary care, and my written submission consists of an overview of the system. I did violence to my sense of patriotism by making it a critical overview, because I felt that the defects in the system can be as instructive as its good qualities.

Speaking briefly to that submission, I am going to draw attention to what I believe to be some of the crucial features of the system in Britain, and then to mention briefly what I see to be some of the challenges facing us over the next 20 years.

First, I would like to say that although care in Britain for elderly people comes from a number of different agencies, it does, collectively, constitute a system. The characteristics of this system include first of all comprehensiveness. We have a very wide range of services which we can deploy for the care of elderly people; some of these come under the Social Services Departments, and range from domiciliary services that we can put into people's homes, through sheltered housing, which is specialist housing accomodation with or without a residence warden to provide some surveillance for the very frail elderly, and ranging to residential care, which is a nonnursing, institutional facility for old people who have become so frail that they can no longer subsist on their own in the community.

Similarly in the medical services, we have a range of services starting from primary care. Everybody in Britain is registered with a primary care physician, and the primary care physician is a member of a multidisciplinary team, including nurse, health visitor and often social worker. In addition to primary care, we have a range of hospital-based facilities deployed specifically for the elderly as geriatric and the psychogeriatric services. These services provide both acute care for old people who become suddenly ill but range also to providing long-term nursing facilities for those unfortunate people for whom this is the only humane option.

But, I think, what distinguishes British hospital services for the elderly is the emphasis we place on rehabilitation facilities. We go to a great deal of trouble to make sure that elderly people who have been ill are offered full attempts at rehabilitation back into the community before we opt for one of the forms of institutional

care. I think that this emphasis on rehabilitation is one of the dominant features of the British medical system.

Another important crucial feature of our system is its universality. These services are available throughout the country, and indeed, it is a right of the public to have access to these services. There are local variations in the volumes provided and also in the relative balance of the different sorts of services, but they are universally available.

Another very important feature is that the services, both in social services and in health, are organized on a geographical basis. The implication of this is that if you know an old lady's address, you can, from that, identify which social services department has the responsibility to provide what social services she needs, and you can also identify specifically, the hospital physician who has the responsibility with providing her with any geriatric medical care that she receives. This clearly allocated responsibility is, I think, a very important feature of our system.

One interesting correlation of this is that those of us who are in the clinical practice of geriatric medicine, not only have our traditional responsibilities toward the patients who present to us for care, we also have managerial responsibilities to use the resources we are given to provide a service to a defined population. This produces a number of important effects. First of all, it can lead to a rationalization and to an optimization of the efficiency of services. It also does involve clinicians in the politics of medicine, as it were, in fighting for the resources needed to care for the population for which they have overall responsibility. It does also introduce into our system, the important factor of selectivity. It is an important principle of the practice of care in Britain that no elderly person should enter an institution or other situation of increased dependency, until all of the possible alternatives have been exhaustively explored, both in a full multidisciplinary assessment and by an attempt at rehabilitation.

I think that this is one reason why our rate of permanent institutionalization of the elderly is quite low by international standards.

A recent sample survey from workers in Manheim, has shown that the provision of all long-term, permanent care to the elderly in New York was about 4.7 per 100 elderly, and in London was lower at 4.0. A further interesting feature of this survey was that two-thirds of the provisions of this type in London was of a nonnursing variety, whereas only one-third was of nonnursing variety in New York. A further feature of the comparison, was that many more of the elderly in institutions in Britain were suffering from dementia than in New York. I think this is a manifestation of the selection process whereby people find their way into long-term care in Britain; our experience is that dementia is the crucial factor that makes the difference between whether you can help an old lady live at home with domiciliary services, or whether institutional care is necessary.

One other feature of Britain has been the astonishing growth of the specialty of geriatric medicine, first of all as a service, and more recently as an academic discipline. We now have 15 professorial chairs of geriatric medicine in Britain in a total of just over 30

medical schools. Now psychogeriatric medicine is following a similar pattern with three professorships of psychogeriatric medicine.

If we now turn to consider the future, we are, in Britain, facing two challenges; the first is the demographic challenge of the aging population, and we anticipate by the end of the century we shall have approximately 15 to 20 percent more elderly people with disabilities of various kinds.

The other challenge is, of course, our present economic crisis, which, I think, from a realistic view is not going to be a short problem. Therefore, our current preoccupations are with improving the efficiency and the effectiveness of the services that we provide. Most of us feel that we are not going to be able to rise to the demographic challenge of the next 20 years, simply by an expansion of what we already have; a policy of more of the same. We are going to have to develop radically new approaches to the deployment of services.

One interesting experiment, for example, which has been greatly successful, although still only an experiment, is the Kent Community Care Scheme. Instead of providing care for elderly people in their homes by the deployment of the many different statutory services that we have like home health, meals on wheels, bath attendants and dressers and so forth, a social worker is given a flexible budget which she can use to provide a package of care for her elderly clients, using partly statutory services and perhaps using part of the money to pay a neighbor to visit at regular times during the day.

This experiment has been very successful, and may be one way forward for increasing the cost-effectiveness of our care.

We are also considering different ways of improving the efficiency and effectiveness of hospital geriatric services. Geriatric medicine is now one of the largest medical specialties in Britain. But there are a number of different models to be seen in Britain, of the way that geriatric medicine relates with other hospital specialties. There is considerable interest at the moment, in trying to identify the most effective models.

One of our major deficiencies is that because geriatric medicine has grown out of service needs, we have not developed adequately in Britain, the scientific study of gerontology. We look with great admiration, tinged, I might say with envy, at the enormous achievements of the National Institute of Aging here in the United States in establishing a scientific basis for the practice of medicine among the elderly.

Certainly my own particular interests, which are concern with prevention of disability in old age, both by medical interventions and also by policies of health, education and self-care, would be greatly strengthened if we had this research facility.

I think that many of our academic departments will be striving over the next decade, to try to develop along some of the lines which you have so well established here in the United States.

Thank you, Senator.

[The prepared statement of Dr. Grimley Evans follows:]

Prepared Statement of Dr. John Grimley Evans

HOSPITAL AND COMMUNITY CARE FOR THE ELDERLY IN THE UNITED KINGDOM

Outline of the system

Statutory support for the elderly in Britain comes from four separate sources. Income support is provided through the Social Security system providing basic old-age pensions (many elderly people have additional occupational pensions) plus a complicated series of supplementary grants for special needs. Social Services, which include domiciliary services such as home aids or meals on wheels, and institutional care in non-nursing facilities, are administered by Social Workers employed in the Social Services departments of elected Local Authorities. Medical and nursing facilities are provided through the National Health Service, administered by a hierarchy of non-elected Health Authorities. At a local level, health services are separated administratively into those based on hospitals and those provided in the context of primary care.

Social Security payments and the National Health Service are funded from central taxation. All British citizens pay National Insurance contributions which establish entitlement to Social Security and Health Services, but provide only a very small proportion of the funding. Local Authority Social Services are in principal funded from local taxation (so-called 'rates') but there is a variable, and currently highly contentious subsidy given to Local Authorities by government from central taxation. All health services are free of charge at the point of delivery, while social services in general require a means-tested contribution from the recipient.

The fourth form of statutory provision is from Local Authority Housing Departments in the form of sheltered housing. Some sheltered housing simply comprises grouped and conveniently designed accommodation units while others have a resident warden whose duties comprise keeping in touch with the elderly residents and seeing that they receive the care they need. Wardens are not required to give any care personally and directly, although many of them do so. Although at an operational level health service and social service staff work closely together in delivering care to elderly people, Housing Departments remain largely aloof and because of long waiting lists it is rarely possible for doctors or social workers to obtain sheltered housing urgently for an old person who needs it. Indeed, the function of sheltered housing has never been adequately defined and it has never become integrated into the options of care that can be offered directly and immediately to disabled elderly people.

Sheltered housing is a facility to which the voluntary sector also makes a significant contribution. The statutory services in Britain have always had an uneasy relation with the voluntary sector, although in some areas the co-operation in delivery of care to old people in their own homes is excellent. One problem, in some people's minds, has been the feeling that the existence of a voluntary sector reflects inadequacies of the statutory sector and may delay their repair. The voluntary sector has also retained a traditional right to 'pick and choose' what contribution it is prepared to make, and in taking over the easier tasks may make the work of those in the statutory sector more difficult and less attractive. Voluntary organizations concerned with the elderly have clearly recognized these issues and the role of volunteers in supporting the statutory services for the elderly is expanding.

Social Security support is in general at a minimal level. In the early days of the planning of the British Welfare State, for both economic and ideological reasons it was decided that support for the needy in the population should be provided in the form of services rather than by income support. Within the last five years some deviation from this approach has been allowed through provision of specific Social Security allowances to permit elderly people to purchase various types of residential care in the private sector. This experiment has lead to abuses in promoting over-institutionalisation of elderly people and in precipitating a rapid increase in fees in the private sector. In the last few months the government has 'capped' the Social Security payments that can be used for this purpose.

Although so far of mixed success, this experiment in co-operation between the statutory and private sectors represents a major new departure in the development of care for older people, but one that is congenial to the philosophy of the present government in Britain. The experiment should not however be misconstrued. It represents an attempt to supplement and not in anyway to supplant or dismantle the nationalised system of Health and Social Services in Britain with which, as recent surveys have shown, the vast majority of people are generally satisfied.

This example of practical co-operation between the statutory and profit-making sectors is a reminder that in addition to an independent voluntary sector, there

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have always been profit-making providers of Health and Social Services for a minority of the need in the British population. There are continuous demands from ideologically motivated sections of the community for the suppression of these non-State provided facilities. I believe it is fair to claim that the great majority of those of us who work full-time within the nationalised system of health welcome the existence of an independent sector to provide some basis for the setting of comparative standards within the nationalised system and so prevent the erosion of standards which would surely occur within a total State monopoly. In the field of care for the elderly the nationalised system provides at present a much more comprehensive range of services than is found within the independent sector and, in general, facilities of at least a comparable standard. The nationalised system of provision is also subject to continuous scrutiny in the light of generally acceptable standards prescribed by professionally determined codes of practice and by both formal and informal systems of inspection. In the independent sector standards can be much more variable, both between establishments and from time to time within the same establishment. The assumption that people with money can buy better care in the profit-making sector than is available to their poorer fellow-citizens using the State system is simply not true as far as care of the elderly is concerned. What the independent sector can offer, however, is a widened choice of type and location of institutional accommodation and many of us would welcome greater scope for constructive co-operation between nationalised and independent care facilities for the elderly.

Seen through the inevitably somewhat cynical eye of history the philosophy underlying the early days of the British Welfare State was distinctly naive. It was assumed that demand would match need and that need would decline as the benefits of the new system improved the health and wellbeing of the people. In practice it has come to be realised that demand is determined by many factors other than objectively identified need and previous sources of need have been successively supplanted by others. Partly because of the inevitably cumbersome nature of a nationalised system of welfare services, the British system has been slow to adapt to changing circumstances. Two examples in the field of caring for the elderly have given rise to considerable debate. The first lies with the Local Authority residential care referred to above. At the end of the 1930's, middle class elderly people who no longer felt able to maintain their own establishments, or who were lonely, often sold up their homes and moved into private hotels. These establishments obviously provided the basic necessities of living, including food, but could not cater for the heavily disabled nor provide any kind of nursing care. It seems that the original conception of Local Authority residential care was that it should provide accommodation equivalent to the private hotel for the unmonied classes. This has meant that residential homes were staffed to cope only with the fit and undisabled elderly and that furthermore this accommodation should be provided for anyone who desired it. As time has passed however, the levels of need among the disabled and particularly the demented elderly have become so great that such people have inevitably become sequestered in residential homes, because no other accommodation is available. Nonetheless, levels and type of staffing, and admission policies have not adapted to this new role of residential care. This appears to be largely due to attitudes of staff working in the homes as well as of administrators and local politicians involved in policy-making. These attitudes seem to be determined partly by a desire to remain loyal to the original conception of residential homes for ideological reasons and a belief that the disasbled should be provided for by the National Health Service, and partly because formal recognition of the de facto change of use of residential homes would require higher levels of funding and also the intrusion of influences from medical and nursing professions into an area which has always been the sole purlieu of the social work profession.

The second example of failure of the nationalised system to adapt is more complex and relates to the orientation, deployment and education of the medical and nursing professions. When the National Health Service came into being it inherited two types of hospital. Traditionally dominant were the charity hospitals, founded and supported by endowments from private sources and with a tradition of providing diagnostic and treatment services for the acutely ill and curable. Administratively separate from the charity hospitals were the hospitals that had grown up in the workhouses, which had been originally set up under the provisions of the Poor Law to house the financially destitute, whether their poverty had been due to ill luck, fecklessness or chronic disability. The clientele of these hospitals comprised, therefore, the chronically ill and disabled from the lower socio-economic classes. With the advent of the National Health Service, the responsibility for the care of the unfortunate inmates of these workhouse hospitals devolved on to the same Health Authorities that inherited the charity hospitals. This responsibility was not

welcomed by the doctors and nurses whose areas of experience and competence had been established in the ambience of the charity hospitals providing acute and curative care only.

The charity hospital doctors has also been working in a tradition in which they gave their services essentially free to the charity hospital and derived most of their income from private practice. In the early days of the National Health Service it was assumed that National Health Service salaries would always be nugatory and that private practice would continue to provide the bulk of doctors' renumeration. (In practice this is not how matters have evolved and the great majority of doctors working in National Health Service Hospitals draw their entire income from their NHS salaries and do no private practice). Faced, therefore, with the challenge of the extra and unwelcome responsibilities of the patients in the workhouses and unwilling to expand the hospital consultant grade for fear of spreading the jam of private practice too thinly, the medical establishment hit upon the idea of creating a specially of geriatric medicine to be staffed by doctors who would work entirely in the workhouses hospitals, have no access to the charity hospital beds and would therefore be unlikely to compete in the area of private practice.

As a medical specialty geriatric medicine has continued to suffer from the consequences of these deplorable origins. Geriatricians are still regarded by many hospital colleagues as second class doctors and a high proportion of them in the past were recruited from the ranks of those who had failed to realise other career ambitions. Geriatric medicine has also been assumed, and still assumed by many politicians and administrators, to be concerned exclusively with the care of incurable or irreversibly disabled elderly people and that access to acute care facilities is not necessary. In fact a number of lines of evidence have indicated that acute care for elderly people when they fall ill is a crucial element in providing successful medical services, and that this acute care should be provided in close co-ordination with the facilities for rehabilitation, long-term care and community support, and this is best achieved if the geriatricians who provide the non-acute care are also involved in the acute care.

This realisation has led within the last decade to considerable controversy within British medicine about the proper role, training and deployment of geriatricians. Essentially three models can now be discerned. The first or traditional model places the geriatrician in a position of providing rehabilitation and long-term care for patients who have had their acute care and initial assessment provided by other doctors. Geriatricians working to this model typically work and provide their services from hospitals separate from the acute general hospitals in which physicians in other specialties have their base. Such geriatricians hope to influence their colleagues' management of the acute care of elderly patients by precept and by control of the vital resource of long-stay hospital beds. The second model originated historically in attempts by geriatricians to fight back against the prejudice and starvation of resources which they had inherited from the early days of the National Health Service. This is the age-defined or "separatist" model, based upon an analogy with paediatrics, in which all medical care for patients above a certain age is provided in separate geriatric departments. To be successful these separate geriatric services require a majority of their beds to be either in the district general hospital or to have district general hospital facilities. The third and newest model, commonly called the integrationist model, takes the view that since the elderly form the largest group of patients in most medical and surgical specialties, the appropriate approach is to spread expertise in the management of elderly patients as widely as possible and that this is best achieved by replacing geriatricians who only look after the elderly by Physicians with Special Responsibility for the Elderly, whose role in their hospital is to help their colleagues in other specialties to care for their own elderly patients appropriately and effectively. This responsbility is discharged partly by providing the traditional specialist services of a geriatric department already mentioned, and partly by providing advice and support, solicited or unsolicited, to their colleagues, and by influencing the development of hospital facilities in such a way that they are suitable for elderly patients. Physicians with Special Responsibility for the Elderly can acheive this more easily than can geriatricians because they are working in the same hospitals and in the same clinical teams as their colleagues in other medical specialties.

Despite the nationalised and centrally administered system of Health Care in Britain, there is considerable local variation in patterns of resource provision and it is extremely likely that all three models of geriatric practice will continue for the foreseeable future. It is to be hoped that the controversy between the proponents of these three models will prove to be stimulating and contructive and will not degenerate, as it has recently shown signs of doing, into attempts to define one model as

orthodox and all else as heretical. From the point of view of other countries considering policy options for the development of medical services for the elderly, the relative merits of these three British models could offer a helpful source of study.

Primary care in Britain centres round the General Practitioner. One important difference from the hospital system is that General Practitioners are independent contractors to the National Health Service, and not salaried employees as are hospital doctors. This arrangement carries many financial advantages for General Practitioners but is of more doubtful utility to their patients. Although remuneration of General Practitioners was primarily based on a capitation fee for each patient registered recent years have seen the growth of the fee-for-service principle in primary care which may be expected to result in doctors doing what maximises their incomes rather than what is best for their patients. The independent contractor status of General Practitioners also renders them immune from even the modest levels of audit to which the hospital doctor is subject. General Practitioners are the most powerful group of the medical profession in political as well as numerical terms. They enjoy a statutory monopoly in provision of primary care so that the exploration of alternative models based on nurse practitioners or hospital services is not possible at present.

The General Practitioners works as a member of a primary care team which is of variable composition but typically includes a community nurse, a Health Visitor (a nurse with special training and responsibilities for preventive medicine, mainly among mothers and infants) and often an attached Social Worker. An enthusiastic primary care team is a powerful resource for the care of disabled old people, providing both therapeutic and preventive intervention. The primary care team is certainly conceptualised as central to the deployment of care for elderly people living in the community. Unfortunately, until recently doctors received little or no training in care of the disabled elderly in their undergraduate or postgraduate courses and in most areas of Britain, particularly in urban centres, primary care is the weakest link in the system of care for older people. It is to be hoped that this will change as younger doctors who have received teaching in geriatric medicine during undergraduate studies and, increasingly, postgraduate experience in geriatric experience in departments of geriatric medicine during vocational training are recruited into primary care. It may also be hoped that the pioneer General Practitioners who have made a special study of care of the elderly will come to have more influence through their specialty. One such has described Primary Medical Care for the elderly as a 'sleeping giant'. It is however more indicative of current attitudes that when the Royal College of Physicians recently proposed the creation of a Diploma in Geriatric Medicine to recognise special expertise in care of the elderly among General Practitioners, the Royal College of General Practitioners, which is the embodiment of the Establishment in the specialty, declined to participate.

Objectives of care

The overall objective of Health and Social Services for the elderly as for any other age group of patients is the increase of autonomy, in other words to enable patients to live the lives that they would wish. In Britain it has always been assumed that this wish for old people is to remain independently in their own homes. Certainly, until recently at least, the British system has produced the lowest level of institutionalisation of the elderly to be observed in any of the economically advanced countries. There is little doubt, however, that this has been achieved at the expense of forcing some old people to continue living at home when they would really have preferred to have been in some kind of institution. This somewhat paradoxical because although in the United States, as the preamble to the White House Conference on Aging made perfectly explicit, the elderly are regarded as not only having the right but also the obligation to remain living independently in the community, no such obligation has ever been recognised for the British elderly. The policy of maximising the community placement of elderly people has been spearheaded largely by geriatricians, who have accepted responsibilities as curators of expensive publicly owned resources in addition to their traditional duties toward their actual patients. In practice this may necessitate the subordination of a patient's wishes to an assessment of her needs compared with those of other potential users of scarce facilities. The ethical and practical tensions that can result from these dual objectives is a widespread but ill recognised source of stress on those working in geriatric services. A fundamental principle in the system of geriatric medicine in Britain is that no patient should be placed in a facility providing for increased dependency until a full multi-disciplinary assessment and trial of rehabilitation have demonstrated the inappropriateness of other placement. It is a the lack of facilities for such assessment

in the profit-making sector that can lead there to over-institutionalisation of elderly people.

The demographic situation

The dominant features of demographic changes in the United Kingdom over the next twenty years were dramatically foreshadowed in the 1971 census. The population "pyramid" in that year showed a prominent bulge around the age of sixty below which there was a "waist" reflecting relatively small numbers of people aged around forty. The bulge of older people are now in their seventies and will pass through successively older age groups to the end of the century. Over the next twenty years we can therefore expect no growth or even a slight reduction in the number of people aged over sixty-five but a substantial increase in those aged over seventy-five and an even greater increase in those aged over eight-five.

The origins of this extraordinary demographic situation lie to only a minor extent in recent advances in therapeutic medicine prolonging the lives of the elderly and middle-aged. By far the largest contribution comes from the pattern of family size and decline in infant childhood mortality during this century. For reasons that are not clear but which are likely to be complex, mortality in childhood begans to fall steeply from the end of the 19th century, although family size remained large until after the first World War when it fell to extremely low levels during the years of the economic depression. The bulge in our 1971 pyramid was therefore delimited at its upper end by the falling childhood mortality rates of the early 1900's—with some contribution among men from the terrible losses in the Great War—and at the lower end by the small families that the generation aged about sixty had produced.

The growth in the number of the very old over the next twenty years offers some alarming predictions about the pattern of needs of the elderly. Use of hospital beds may increase up to 20% as may the use of some domicilary service. Most alarming perhaps is the projected increase in the number of the demented, since these make particularly heavy demands on institutional facilities. There is also evidence that dements are surviving longer than was the case when current plans for institutional provision were drawn up. Whether cohort changes in the incidence of some important forms of disability will modify some of these expected changes is impossible to predict in Britain at present as we have not yet managed to commission an appropriate research survey on current patterns of aging in our population.

The fact that the generation who preduced their families during the late twenties and thirties of this century had smaller numbers of children then the generations before or after them is important. There are a number of lines of evidence that support given by children to their elderly parents has a major effect on the demand for statutory Health and Social Services in Britain. One survey has suggested that if all informal care (most of it supplied by family members) were to be withdrawn from elderly people in the community, the provision of special housing for the elderly would have to be increased 2.1 times, of non-nursing institutional facility places 2.5 times, of non-psychiatric hospital beds by 60% and of hospital psychiatric beds by 30%.

Three important conclusions need to be drawn from this sort of observation. The first is that contrary to the fears of many, the deployment of a freely available statutory system of Health and Social Service does not lead to a breakdown of withdrawal of family support and cohesiveness. There is abundant other evidence to support this conclusion in Britain. The second is that there can be no question of the State taking over totally the responsibilities and functions of the family in supporting individuals, an aim that undoubtedly figured among the ideals of some of the ideologically committed architects of British Welfare State forty years ago. The third conclusion is that both at a planning level and at the level of delivery of care to individual members of the community, the statutory services need to take particular care to support, and not attempt to supplant families and other informal careers. There is no doubt that until recently the statutory services did not pay enough attention to this; indeed some studies suggested that old people who were receiving support from their families were actually discriminated against by Social Services Departments in the allocation of domiciliary services.

The future

This very brief overview was intended to demonstrate that the British system of Health and Social Services provides, in principle, a comprehensive range of facilities, access to which is a statutory right of all elderly people. There are, however, gaps and anomalies system which need and are receiving attention, particularly from academic and research departments. The administrative separation of health and social services is a constant source of problems in many areas, with the two

administrations working to different criteria and each with a strong interest in transferring the cost of care of the elderly to the other's budget. At the level of care delivery there is too much fragmentation; as many as sixteen or more different people may be involved in delivering bits and pieces of care to an old person, with no-one in overall charge to see that needs are actually being met. Some services, of which meals on wheels is a well-established example, rarely meet care objectives and are irrationally and wastefully deployed. There are some gaps in the range of services which also tend to be supplied at times convenient to the suppliers rather than according to the needs of the recipient. Many of the services provided by Local Authorities are essentially prosthetic in nature and may lead to greater deterioration in an old person's abilities than a more active therapeutic approach. Perhaps the most global problem, which we have indicated already, is the difficulty in exploring and introducing change in a system which over the last forty years has developed almost exclusively on a 'more of the same' basis. Changing a bureaucratic system such as Britain's from management by structure to management by objectives is the difficult task to which many are addressing themselves, but in the foreseeable economic future this appears to be essential if the growing needs of the elderly are to be met effectively.

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Senator GLENN. Thank you very much, Doctor.

Our next panelist is Dr. Françoise Forette of France, Director of the National Foundation of Gerontology in Paris. Dr. Forette is a specialist in internal medicine, has done extensive research work on hypertension in the elderly. She is the chief of service of the Department of Clinical Gerontology at a Paris Hospital and her current research efforts concern hypertension in the elderly, senile dementia, and health care systems for the elderly. She will discuss the role and impact of the French Cabinet Ministry on Aging.

Dr. Forette, we welcome you today.

Thank you.

STATEMENT OF FRANÇOISE FORETTE, M.D., DIRECTOR OF THE FONDATION NATIONALE DE GERONTOLOGIE, PARIS, FRANCE

Dr. FORETTE. Mr. Chairman, Mr. President, first I would like to thank very much Senator John Glenn for inviting me to this very impressive meeting. It's a great honor for me.

I must apologize because I have to read my paper, because I don't know why I am more fluent in French than in English.

I was interested in a course given by the New School for Social Research in New York. But the problem was that this course was entitled "how to lose your New York accent." My problem was to get one.

Senator GLENN. You have lost your New York accent.

Dr. FORETTE. I know that. [Laughter.]

Well, Senator Glenn, you have asked me to give a short paper on the role and impact of our French Ministry on aging.

Originally established in 1981, the Ministry for the Elderly, which later became the Ministry for the Retired and Elderly, revealed to the public the problems posed by the aging of the French population, and the various difficulties faced by the elderly who remain far too often one of the most disadvantaged groups in our society.

Placed under the auspices of the Department of Social Affairs which, in fact, controls the entirety of the Sanitary and Welfare Administration, and particularly the corresponding budget and facilities, the Ministry for the Retired and Elderly has, as its goal, to activate the global and coherent policy for the needs of the elderly.

It serves as a unique spokesman for professionals and concerned associations, and presents their problems to the government. As a center of privileged reflection, its existence helps assure that cutbacks which are unavoidable in sanitary and social expenditures, are not going to adversely affect the elderly.

The hope of the majority of the elderly in France, is to be able to remain in their own homes for as long as possible. The Ministry for the Retired and Elderly concentrate essentially on making this wish possible.

It's first step was to improve the resources of the most impoverished, so that they would not be chased out of their homes because of financial problems. The following measures were adopted: increase of the minimum old age benefit by 74 percent in 3 years. Increase in retirement pension. Reevaluation of the housing allowance by more than 50 percent. Financial advantages favoring the elderly who still live at home such as exemptions from property tax and from radio-television tax for those over 60 who pay no income tax and free telephone installment for the poor. The Department also tries to encourage the development of home services through the promotion of domestic aids and home health care services.

Domestic Aid: The number of elderly people benefiting from this service grew from 300,000 to 800,000 in 3 years. New jobs were created and a collective agreement established their working conditions.

Home health care services developed considerably, assuring each year the care of 100,000 people. These services have, as their aim, to offer an alternative to hospitalization or institutionalization by providing the help of a nurse's aid, a nurse, or any other paramedical benefits. This group is coordinated by a head nurse and a manager.

Health insurance or social security assures 100 percent coverage for these services.

The improvement in living conditions was made possible by the allocation of credit granted by the Bureau for the Elderly.

In addition, legal protection for the elderly tenants requires that the termination of a lease contract cannot be demanded of a tenant over 60 years of age whose resources are under a certain ceiling, unless another lodging correspondent to his needs and means is offered.

One of the major objectives of the Bureau for the Elderly, is the prevention of the loss of independence by forming committees and continuing research on such subjects as incontinence, bed sores, falls, fractures and invalidity, by continual training of the work force and by providing information concerning the elderly and their families in all of these matters.

All of these measures tend to allow the elderly to remain longer in their own homes. Institutionalization is still necessary in certain cases. Less than 5 percent of people over 65 are institutionalized in France. The age of admission for nursing homes becomes more and more advanced. In general, over 80, quite often now over 90, and at a more marked state of dependence.

The Ministry concerns itself with the improvement of the accommodations and care in these establishments. The humanization of the nursing home is encouraged through the following measures: progressively replacing wards by rooms with one or two beds. Limiting the size of the services in order to create a more family like atmosphere. Placing the institutions in the city instead of the outskirts, to prevent isolation and to favor more social contacts. Increase and renewal of the health care team, by appointing dynamic and motivated medical teams and by diversifying the personnel to include activity leaders, arts and craft directors and beauticians as well as psychologists or occupational therapists.

Therefore, an attempt is made to utilize more effectively the 400,000 existing beds.

Another important objective of the Ministry is to insure a better representation of the retired and elderly.

Retired people now hold seats in numerous groups such as boards of directors for retirement pensions and social security committees, which examine matters that directly affect them economically and socially.

In addition, the following specific consultative authorities were created: a National Committee for the Retired and Elderly, Regional and Departmental Committees for the Retired and Elderly, and uniting organizations for retired people. These are responsible for giving out advice and formulating annual reports on the establishment of social and social-medical activities.

On the local level, authorities were created to coordinate social and social-medical action. Organizations of retired people are represented in these local authorities so that they can participate in the planning and the management of the services that affect them.

As a whole, the role of the Ministry for the Retired and Elderly is to constantly attract attention to the specific problems faced by the elderly. This role is particularly difficult to maintain during periods of crisis when the general public is primarily preoccupied with the problems of unemployment, modernization of industry, and the younger generation's adaptation to adult society.

Thus, the risk of negligence and discrimination against the elderly perhaps created the need of such a bureau.

Thank you very much for your attention.

[The prepared statement of Dr. Forette follows:]

Prepared Statement of Dr. Françoise Forette

The Role and Impact of the "French Ministry on Aging"

Background

Originally established in 1981, the Bureau for the Elderly, which later became the Bureau for the Retired and Elderly, revealed to the public the problems posed by the aging of the French population and the various difficulties faced by the elderly who remain far too often one of the most disadvantaged groups in society.

Two directors successively assumed this responsibility.

Mission

Placed under the auspices of the Department of Social Affairs which controls the entirety of the Sanitary and Welfare Administration, particularly the corresponding budget and facilities, the Bureau for the Retired and Elderly has as its goal to activate a global and coherent policy for the needs of the elderly.

It serves as a unique spokesman for professionals and concerned associations and presents their problems to the government. As a center of privileged reflection, its existence helps assure that cutbacks which are unavoidable in sanitary and social expenditures are not going to adversely affect the elderly.

Assessment of its function

The hope of the majority of the elderly in France is to be able to remain in their own homes for as long as possible. The Bureau for the Retired and Elderly concentrates essentially on making this wish possible.

Its first step was to improve the resources of the most impoverished, so that they would not be chased out of their homes because of financial problems. The following measures were also adapted: increase of the minimum old age benefit by 74% in three years (from 140 dollars per month in 1981 to 240 dollars in 1985); increase in retirement pension (62% in 1985); revaluation of the housing allowance by more than 50%; and financial advantages favoring the elderly who still live at home such as exemption from property tax and from radio-television tax for those over 60 who pay no income tax and free telephone installment for the poor.

The Department tries to encourage the development of home services through the promotion of domestic aids and home health care services.

Domestic aid.—The number of elderly people benefiting from this service grew from 320,000 to 800,000 in three years. New jobs were created (5000 in 1982) and a collective agreement established their working conditions.

Home health care services develped considerably, assuring each year the care of 100,000 people. These services have as their aim to offer an alternative to hospitalization or institutionalization by providing the help of a nurse's aid, a nurse, or any other paramedical benefits (physiotherapist, speech therapist, etc.). This group care is coordinated by a head nurse and a manager. Health insurance assures 100% coverage for these services.

On the other hand, important complementary structures such as day hospitals and day centers have not yet been sufficiently developed.

The improvement in living conditions was made possible by the allocation of credit granted by the Bureau for the Elderly.

In addition, legal protection for elderly tenants requires that the termination of a lease contract cannot be demanded of a tenant over 70 years of age whose resources are under a certain ceiling unless another lodging corresponding to his needs and means is offered.

One of the major objectives of the Bureau for the Elderly is the prevention of the loss of independence by forming committees and continuing research on such subjects as incontinence, bed sores, falls, fractures and invalidity, by continual training of the work force and by providing information concerning the elderly and their families in all these matters.

All of these measures tend to allow the elderly to remain longer in their own homes. Institutionalization is still necessary in certain cases. Less than 5% of people over 65 are institutionalized in France. The age of admission for nursing homes becomes more and more advanced (in general over 80, in truth over 90) and at a more marked state of dependence.

The Bureau concerns itself with the improvement of the accommodations and care in these establishments. The "humanization" of the nursing home is encouraged through the following measures: progressively replacing wards by rooms with one or two beds; limiting the size of the services in order to create a more family-like atmosphere; placing the institutions in the city instead of the outskirts to prevent isolation and to favor social contacts; and increase and renewal of the health

care teams by appointing dynamic and motivated medical teams and by diversifying the personnel to include activity leaders, arts and craft directors and beauticians as well psychologists and occupational therapists.

An attempt is made to utilize more effectively the 400,000 existing beds.

One of the Bureau's important objectives is to ensure a better representation of the retired and elderly.

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In addition, the following specific consultative authorities were created: a National Committees for the Retired and Elderly, Regional and Departmental Committee for the Retired and Elderly, and uniting organizations for retired people. These are responsible for giving out advice and formulating annual reports on the establishment of social and medico-social facilities.

On the local level authorities were created to coordinate social and medico-social action. Organizations of retired people are represented in these local authorities so that they can participate in the planning and management of the services that affect them.

The lowering of the retirement age and the significant number of people who retire early increase the potential of men and women with valuable experience who are ofter eager and able to work for social causes. New forms of solidarity and neighborliness developed. A Fund for Social Innovation endowed with 10 million French Francs financed the development of 300 projects as of 1984.

Volunteers for the Third World: through the initiative of the Bureau, the "Association Agir" was created with the idea of finding retired people who were willing to put their professional and technical knowledge to use by helping developing countries.

As a whole, the role of the Bureau for the Retired and Elderly is to constantly attract attention to the specific problems faced by the elderly. This role is particularly difficult to maintain during periods of crisis when the general public is primarily preoccupied with the problems of unemployment, modernization of industry, and the younger generation's adaptation to adult society.

Thus the risk of negligence and discrimination against the elderly perhaps created the need of such a bureau.

AGING IN FRANCE

Demographic trends

France was the first "aged" country compared to the other industrialized nations. The demographic aging of France is, in fact, an old phenomenon. Since the beginning of the 19th century, the proportion of the aging in the French population has continuously increased. In 1850, the 65 and above accounted for 6.5%. In the early years of this century, this increased to 8.5%. Then, from 11.1% in 1948, the ratio has passed to 14% of the total population in 1981. France, today, is in a comparable situation to that, for instance, of most EEC countries.

The first cause of demographic aging in France is a continous decline in fertility. The age pyramid progressively thins at its base because of a continuous reduction of the new generation despite some immigration. Since 1965 France has been confronted with a decline in fertility which breaks with the demographic boom of the 1946–1954 period ("full generation"). This break, in fact, reflects the progressive alignment of couples toward a two children family. The conjunctural index of fertility situates 1.96 children per woman in 1981 while the simple replacement of generations requires a rate of 2.2.

On the assumption that the fertility rate remains unchanged, there will not be a significant increase in the number of the aged during the next 20 years.

A decrease in the number of the 65 year and over will probably be recorded up to 1985 because of the "lean generations" of 1915–1920 reaching 65 years. Aging will then take on a more moderate rhythm: 8,1 million persons of 65 years and above in years 2000 for a total population of 56 million, or 14.5; 10.7 million elderly 60 and above, or 19.2%.

In term of socio-economic effects, the aging of the population will cause an increased burden on the active working population. Around 2010 the progression of the aging population will accelerate, bring with it a reduction in the ratio between the active work force and the aging. The expenditures on aging would then increase considerably in relation to the Gross Domestic Product (GDP). From approximately 10% of the GDP today it would increase to 12% between the years 2000 and 2020 if fertility does not increase over 1.9.

The increase in spending for health due only to the deformation of the age pyramid will remain low for individuals with similar consumer habits. However two other factors will weigh heavily on health spending. On one hand, the average consumption of the elderly could rise more rapidly than that of the rest of population as the new generations of retirees being better trained and educated will demand better medical coverage.

On the other hand, taking care of the very old and dependent will result in higher spending because of the increase in the number of these more fragile individuals who are often in a precarious state and prone to isolation. The group of 75 and over has passed from 2.8% in 1931 to 5.8% in 1981. The number of 85 years and over will double in the last third of this century, nearing almost a million in 2000.

The Government has already stressed that the growth of their numbers increased effort of the part of the community. The doubling of national funds in 1982 compared to previous years was decided after taking these perspectives into account. The fate of this fragile population will largely depend on the diversification of the systems providing home care and on the improvement of community services.

Medical progress in the fight against cancer and cardiovascular and other diseases will no doubt result in prolonging the average life span. This resultant drop in mortality at higher age levels will combine with the effects of insufficient fertility. One plausible hypothesis is that after 2010 the aging of the population would accelerate.

Unless there is a marked modification in actual fertility the proportion of the elderly will pass from 18% in 2025 to 20% in 2050. A more modest fertility index of 1.4, similar to that recently observed in Europe, would put the percentages at 22% in 2025 and 27% in 2050.

In the French context, where the income of the aged is financed by the community, the social charges will be heavier. An increased employment of aging workers could constitute a remedy, contrary to the conjunctural trend of the 1980s. But this must be evisaged in the broader framework of a redistribution of work among all, young and old, who would be in search of work.

The French aging population is, among other features, characterized by: an important proportion of old women, some very old; a differentiated life-expectancy according to socio-professional categories; and an unequal geographical distribution of the aging.

This elderly population is in majority female. On January 1, 1981, out of 7,457,000 persons of 65 years and above, 4,550,000 were women. Their percentage increases with age. The gap between male and female life-expectancy in great part explains this imbalance. From 1900 to 1975 this gap has increased from 4 to 8 years. The older women are the most isolated; widowhood being the principal cause. Consequently, out of 2 million elderly living alone, 80% are women.

A second peculiarity is that life-expectancy is very differentiated according to socio-professional categories.

Mortality by occupational class was studied from a sample of the population taken from the 1954 census and followed until 1971. These measures of life-expectancy at 35 years well reflect social inequalities. At the base of the scale unskilled manual workers, on the average, do not have, at age 35, more than 33 years to live. Skilled workers in the private sector and farm workers will live two years longer. At the other extreme, higher executives and independent professionals have, at age 35, a life expectancy of 40.5 years. For Teachers it is 41 years.

The interpretation of these inequalities is not unequivocal. Poor conditions of work exert a strong influence so mortality is higher among manual workers and within this same category one finds a higher mortality in the private than in the public sector. Selectivity at entry into a career may also pay a role.

However, conditions of work do not explain everything. Studies have shown strong inequalities in infant mortality. The degree of social protection also counts, as does the knowledge of hygiene and health. Of the three favored professions two have, among other functions, that of setting an example to the Community: priests and teachers. The factors can combine. For example, alcoholism, a cause of high mortality, is more frequent in places where the conditions of work are the worst, the level of education lowest, etc. Social inequality in the face of death therefore can be explained by different life styles and diverse attitudes towards life.

The age of retirement

The first factor to take into account is the tendency during recent decades of the level activities to drop with advance in age. The term "retirement age" covers a variety of situations. There is a minimal age at which an individual may draw his pension but a lower rate than he would if he waited until the normal retirement age

when one is entitled to a full rate. There is also the maximal age, the mandatory "age limit", over which one has to cease activity in his own sector.

In 1945, when 65 years was fixed as the age for a right to a full pension from the new Social Security basic fund, average longevity was 59 years. In 1982, when this age was lowered to 60 years, average longevity stood at 72 years. This inversion of data points to the wide variety of problems raised by the management of retirement time, problems which are still imperfectly dealt with.

To master this is even more difficult since the economic situation has altered the policy conducted in this domain. On one hand, the lowering of retirement age brought considerable social progress to the careers which were the longest, toughest and most exposed to pathogenic factors. The satisfaction obtained in 1982 for certain categories is a major step forward. But on the other hand, the present econcomic crisis has hit an increasing number of aging workers who have progressively been rejected from production or confined to positions which are either marginal or doomed to rapid supression. Retirement is, therefore, imposed earlier on people who do not always want it and who are rarely prepared for it. This devaluation fundamentally contradicts the image of an active "third age", of a new beginning in life.

From 1954 to 1980, the proportion of the active population in the 60 to 64 year bracket has changed from 71.5% to 46.9% for males and from 35% to 27.1% for females.

The risk could be the development of opposition between age categories, particularly between the active 40% of the population who shoulder national production and the inactive 60%. A frequent conviction is that profound changes must occur over the next decades beyond the measures already imposed by the situation. The specialization of fields and stages of life will tend to disappear and be replaced by different rhythms of transitions, alternations and possible returns. Social conditioning such as being caught in professional channels ought to fade. The State ought to guarantee a much wider freedom of choice for individuals over their life span.

Income

A fundamental short term concern is the reduction of income inequalities. One cannot globally consider that the French aging population is generally poor. But the complex system of pension schemes and resources do not help in eliminating poverty and precariousness.

The aged participate more than ever in the economic cycle with their increasing number. They stand out from the rest of the population mainly because of the varied nature of their incomes. These are essentially incomes of transfer which do not have a simultaneous economic counterpart. The retirement pensions of elderly households represent an average of 50% of their total income. This proportion is very high in a household with low income (84%) but diminishes as the income increases. Income from other activities or personal patrimony constitute the rest of their total income.

A fairly important number of the aged still receive an income in no way linked to their earlier pension contributions because they did not contribute long enough to be entitled to one. A Minimum Old Age Benefit is paid to 1,900,000 individuals.

Its spectacular increase during the last twenty years has resulted in a tangible improvement in the conditions of life for the most disfavoured. One of the first measures taken by the new Government in 1981 was to accelerate progress in this domain.

About half of the Minimum Old Age Benefit is paid by the Social Security in the form of a basic pension, the State budget providing the balance through a Solidarity Fund. This latter allocation is linked to the possibility for the state to recuperate a proportion from the inheritance of beneficiaries after an exemption raised from 150,000 to 250,000 Francs in 1982.

France has a sophisticated system of pensions to cover "rick of old age" set up by an October 4, 1945 executive order and incorporated into the Social Security System. The original purpose of a single fund was fragmented into a mosaic because of opposition from many socio-occupational classes. This heterogeneity is the source of inequalities.

Life conditions

Out of 7.5 million elderly of 65 years and above, less than 500,000 live in institutions and 7 million in their own homes (apartments of private houses). The conditions in institutions are yet far from satisfactory and are the subject of an active policy.

As far as individual housing is concerned, nearly 40% of the aging have "comfortable" accommodations, as opposed to 61% for all households. The households of the less than 75 year olds are best housed, 56% are owners (47% for all households),

80% occupy old housing. Many units are in bad condition, particularly in rural areas. In 1980, 1,400,000 did not have a private toilet, 600,000 neither bath nor shower, 156,000 no running water, and 400,000 were living in housing considered to be precarious.

Nevertheless, the percentage of elderly households living in housing without comfort has fallen from 57.7% to 31% from 1967 to 1978.

A housing allowance is paid by the Family Allowances Funds to help the aged of over 65 years (60 years in certain cases) who are tenants or potential house owners. It is within the limits of a minimum rent which represents a certain percentage of annual resources and consists of 790 francs per month (930 per household) plus the extra expenses (182 Francs) as of December 1981.

Several indicators confirm, in other cases, the improvement of conditions of life. The measures in terms of resources have tangibly increased the purchasing power of the retired and the aged. Thus, at the end of 1979; 89% of the households of the 70+ year-olds has a refrigerator (95% of all the households), against 38% and 89% respectively in 1966; 91% of 65 to 69 year-olds and 85% of the 70+ year-olds, had a television (89% for all households); and 62% of the 65 to 69 year-olds and 54% of the 70+ year-olds had a telephone (60% for all households), against 25, 20% and 26% respectively in 1954. A priority is given to them for installation and the recipients of the minimum old age benefits are exempted from paying installation changes. In addition, local tele-alarm services are in operation in several towns, with transmitters linking the aged through the normal network to emergency intervention services.

In spite of this progress, the aged still have a level of consumption which is markedly below the average.

Leisure activities have become more accessible. In 1980, 45% of the 65 to 69 year-olds and 32% of those 70 and over went on holidays. One notices great disparities according to socio-professional categories, levels of income and urbanization.

Among the motives for not taking holidays are the problems of health (30%) which come before the financial ones (20%), the lack of desire to leave (14%) and the constraints of professional activity (13%).

Needs

Aging is not a disease, but morbidity increases with age. That is to be old is to be ill more often. The needs of the sick elderly are diverse. Health policy tries, without resorting to excessive therapy, to provide treatment required by the condition of the patient, taking into account the specificities of the elderly's illnesses.

The geriatricians are attentive to the relevance of hospitalization. The elderly patient must be treated efficiently. One must not fear hospitalization when the rapid application of complex techniques is necessary in order to arrest serious deteriorations, whose after-effects would definitively be disabling. Geriatric emergency does exist. On the contrary, unnecessary or ill-prepared hospitalizations (when treatment on the spot would have been possible) risk triggering very rapid somatic degradation. Important progress remains to be accomplished in this domain.

The elderly patient is also an old person whose frailty is great. Whether in hospitals or at home, the temporary prevailing need for technical and medical care must not impinge on the need for supplementary more social aids, enhanced by illness itself. The fast-growing development of home-maker services derives partly from this necessity.

Medical care tries to take into account the whole needs of the elderly without hospitalization being the sole reflex. But incurable illnesses (often including long terminal phases), specific assistance to the dying and the necessity to avoid excessive therapy and premature resignation do not find unequivocal institutional answers. To face the ultimate phase of human life and to prepare for it raise questions which are still largely shunned aside from spiritual convictions.

The social insertion of the elderly is primarily a question of land and urban planning, transportation and communication. Planning must take into account their specific needs and should also cover architecture and town planning. It is necessary to plan small housing units in proximity to larger apartments so that the family can take care of their elders with an "intimacy at a distance". This would promote inter-generational interaction.

The need of the aging for employment and activities in general are, as mentioned above, a delicate issue today. The right to work was included as a fundamental right in the preamble still in force of the French Constitution of 1946. Nevertheless, the factors already mentioned, such as the fatigability due to advance in age and economic circumstances, mean that the population is less active. The rise of a better protected wage-earning class, benefiting from more favourable pensions, could also

explain this phenomenon. The lowering of retirement age, with the view to giving individuals the freedom of choice, certainly responds to the demands of the trade-unions. But with the concern to palliate the difficulties of employment, the companies are entrenching themselves in the process of devaluation, segregation and rejection of aging workers. An ambivalence is created toward retirement: even if it is desired by the individual, it also means his rejection.

The needs resulting from this situation are of two kinds. On one hand, the means and tools of production must be adapted to the capacities of aging workers.

It is essential in this regard, to recall that the General ILO Conference adopted Recommendation 162 on June 4, 1980, known as the Recommendation on Aging Workers, which calls for an important effort in the context of training of aging workers, adpatation of their work and their protection.

In fact, the status and roles of the aging person in the Occidental civilization of production call for a new policy which is still at the stage of conflicting opinions.

The needs for training are not to be neglected. The age of retirement and old age may appear as a privileged period in which the individual may develop his cultural aspirations. On this point the French record is positive with developement of "universities of the third age", training courses particularly in craftmanship and artistic activities, trips and social exchanges. But a large part of the aged stay away from these cultural activities. The lack of resources partly explains this. The modes of production and culture consumption also largely contribute to these difficulties. Assistance and segregation often underlie the cultural intiatives directed toward them. Newspaper columns and programming schedules on radio and television are not exempt from excessive gaps between generations.

The family is a focal point of solidarity between generations. Family and old age policies respond more to complementary than concurrent needs and should be mutually enriching. The availability of grandparents is precious for the equilibrium of the family including education and caring for young children. The transmission of cultural patrimony largely depends on links between the generations. The family is often the most efficient unit for taking care of a dependent person. But psychologic and socio-economic evolution and urbanization have led to decohabitation and a breaking up of the traditional family unit. This tendency must be halted through appropriate aid and incentives.

The needs also become evident in terms of intergenerational relations. The modification of the structure by age has upset life styles. The drop in infant mortality and reduction in the number of children have already deeply influenced attitudes and behaviour. In the same way the increasing co-existence of four generations in the same family is steadily beginning to transform the organization of society. An aging population also multiplies the risks of isolation from the family for the very old and of tension between the generations. On the political front aging of the electoral body already constitutes a factor which must be taken into account.

France is, therefore, eager to assure a new place for the aged. The arrival of new generations at retirement perceptibly modifies their place in society. These new retired have often enjoyed better training. They also have better resources at their disposal. A growing professional mobility, as well as generally more comfortable adult life, have better prepared them for the social and cultural activities of retirement.

Thus, it is likely that in the future the retired will constitute a pressure group and will better defend their rights. Their interests actually coincide with those of the entire community. If society missed this opportunity to give a true place to the aged it would be depriving itself of an important proportion of its human wealth.

NOTES

1. We would like to thank the "Direction générale de la Santé du Ministère des Affaires Sociales et de la Solidarité Nationale" for supplying us with the information concerning the Ministry on Aging.

2. The section of the report entitled "Aging in France" is drawn largely from the French Report for the World Assembly on Aging.

Senator GLENN. Thank you very much, Dr. Forette.

Our next panelist is Dr. Carel Frederick Hollander of The Netherlands. He is director of the TNO Institute for Experimental Gerontology of the Division for Health Research in The Netherlands.

I guess I should try and state what TNO means. It means Takapost Notrevetin Shopoligicunderve.

Does that do it? [Laughter.]

Which means applied research in natural sciences I understand.

Dr. Hollander's scientific interest includes gerontology, radiobiology, oncology, transplantation biology, and laboratory animal medicine. He also serves as a professor of medical gerontology at two state universities in The Netherlands, and has been involved in many international aging research projects and activities.

Dr. Hollander also joined us at our 1977 hearing on "The Graying of Nations" and we invited him back today to discuss the long-term plans being made in The Netherlands to deal with the elderly population in the year 2000 and beyond.

Dr. Hollander, welcome.

STATEMENT OF CAREL FREDERICK HOLLANDER, M.D., DIRECTOR, TNO INSTITUTE FOR EXPERIMENTAL GERONTOLOGY, DIVISION FOR HEALTH RESEARCH TNO IN THE NETHERLANDS

Dr. HOLLANDER. Senator Glenn, I would be happy if I could speak so well English as your Dutch was today.

Ladies and gentlemen, policy decisions on health matters taken today, will shape the health of our population of tomorrow.

Health and disease by the year 2000 will be quite different from those of 1984 or 1985. In order to create health services that effectively respond to the changing picture of health, governments should try to anticipate the health needs for the future.

In The Netherlands, it is of current interest to apply the context scenario technique to the long-term planning for health services by the year 2000.

The scenarios for the elderly being briefly discussed today are approximations of developments that are to a high degree autonomous if considered from the position of individuals and organizations which are responsible for policies concerning health and health services in The Netherlands. They have been developed by the Committee on Aging, under the direction of a Royal Commission. This committee comprised a working group of experts chaired by myself, and a research team coordinated by Prof. Dr. H.A. Becker.

The questions addressed can be summarized as follows: First, what are the major future developments that will influence the health status of the elderly in The Netherlands between 1984 and the year 2000?

Second, what are the most important alternative patterns of health services between 1984 and 2000, taking into consideration the likely future health status of the elderly and their relative number in the population of The Netherlands?

The three contextual scenarios developed are based upon the forecasts, explorations, and speculations to be found in the literature. Furthermore, they are also based upon the outcome of discussions with groups of experts in the field of medical, biological, and technological research and practice.

The choice of the three scenarios presented in the report of the Committee on Aging is to a certain extent arbitrary. This is not a serious impediment since the scenarios are presented in such a way that the reader can construct his own additional scenarios. Scenar-

ios sketch potential contexts for decisionmaking with regard to the future. These contexts provide policymakers with a learning environment in which they can test the strategies considered to answer the questions posed as well as the particular circumstances in which these strategies might be feasible.

The following variables have been incorporated in the study preparing the scenarios: demographic developments, health status of the elderly, health services for the elderly, developments in medical, biological and technological fields and societal developments, for example, economic and social.

Using these variables, the following three scenarios were developed:

First, a reference scenario containing autonomous developments resulting in about the same pressure on health services for the elderly. In this scenario, the situation of 1984 is extrapolated toward 2000. With regard to the economic aspects, 0.6 percent economic growth per year is assumed, and if associated with a financial redistribution in the public sector, will permit a continuation of the budgets for health services at the level of 1984.

Second, a scenario containing autonomous developments resulting in more pressure on health services. This scenario presents a development in which demand for health services grows more than could be expected on the basis of the calculations in the reference scenario. The health situation of the elderly will be affected by the increasing pressure on the health services. Professional and commercial assistance may improve, especially for the well-to-do elderly. Self-reliance is poor, however, and social isolation predominant.

Third, a scenario containing autonomous developments resulting in less pressure on health services. This scenario is characterized by a decrease in the demand for health services as a result of a change in attitudes toward health and related services.

In all three scenarios, the medical, biological, and technical developments have been held identical because approximately 15 years is thought to be relatively short to envisage any major breakthroughs in these areas and/or will have a major impact on both health and health services.

Furthermore, two critical incidents, viz, the potential impact of a postponement of the onset of senile dementia of the Alzheimer type and a decline in human solidarity, have been added to enhance the practical quality of the testing environment.

Furthermore, the cross impact of the autonomous developments described in the three scenarios, and three potential patterns of health services have been analyzed. These are: business as usual, first class cure and care, and a self-caring society. The option implied by a self-caring society would stand a chance if the state of the art of planned social change were taken seriously, and if a major effort were to be made on the basis of the knowledge and the know-how available, to induce changes in the social conditions of the elderly.

This scenario project was medium sized, 1 to 5 man-years, but has been received favorable by potential users. It still remains to be seen, however, in what manner policymakers will use these data.

I would like to close by thanking Senator Glenn and the U.S. Senate Special Committee on Aging for inviting me to testify here today.

Thank you.

[The prepared statement of Dr. Hollander follows:]

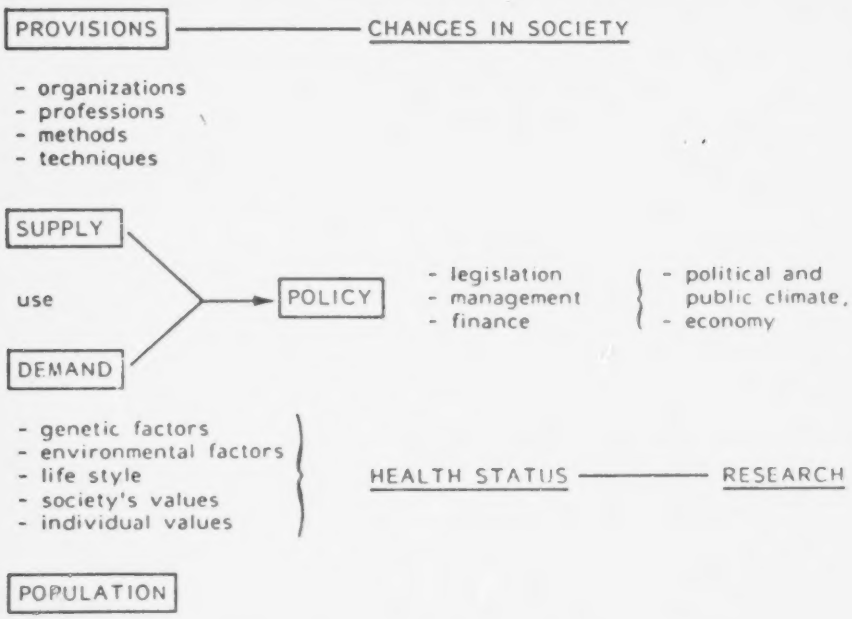
PREPARED STATEMENT OF DR. CAREL FREDERICK HOLLANDER

CONTEXT SCENARIOS FOR THE ELDERLY IN THE NETHERLANDS 1984-2000

In the Netherlands, the long-term health planning system is developing "scenarios" on alternative future changes with regard to health and health care by the Year 2000 and beyond. For this purpose, the country has established a Royal Commission to investigate selected aspects of the health system. This Royal Commission presently oversees the work of ten committees, including one on the future of aging and health.

The major task of the Committee on Aging is to study autonomous future changes in the health of and health services for the elderly and to develop context scenarios based on these autonomous changes. For this task, the Committee on Aging is assisted by a research team of experts specialized in scenario methodology. The committee consists of eight experts in the areas of health services for the aged, health economics, epidemiology, sociology and medical-biological research on aging.

The autonomous changes to be anticipated can be summarized in the following diagram:



Modified from R.G. Evans, 1981 and W.M.J. van Duyne, 1984

As can be seen from the diagram, not only demographic (population) changes but also future changes in health and disease will exert influences on "demand". On the other side, dealing with problems of the elderly, one has also to take into consideration future changes in provisions, i.e., organizations, professions, methods and techniques, as well as social changes. Also, future economic profiles cannot be omitted. The arrow in the diagram depicts the flow of information to be incorporated into the context scenarios to be presented to the policy makers for use in their exercise

in preparing long-term health strategies for dealing with the problems of the elderly.

At the end of 1984, the committee reported the results of their study. In their deliberations, the committee and its research team have dealt with most of the issues mentioned above. In addition, in order to assess the outcome of these discussions, hearings were held with experts in the areas of medicine, biomedical and technical research and health services.

The Report of the Committee "Aging and Health—Scenarios for the period 1985–2000", propounds (quantitatively as well as qualitatively) that the health status of the elderly will be influenced by developments in medicine which will cure or prevent diseases at a younger age, as well as being influenced by the so-called "double greying" [i.e., the increase in the proportion of the "old elderly" (80+)]. Furthermore, future changes in life style may well have a dramatic influence. For instance, if the future female lung cancer incidence rate continues to rise as it has in recent years (D.T. Janerich, J. Natl. Cancer Inst. 72, 1317–1321, 1984), and is associated with a decline in mortality from cardiac death in males, the result would be a diminution in the difference in life expectancy which exists between females and males. This, in turn, would have an important influence on the health service provisions. Also, it is stressed that we are facing a future in which we will see many elderly people with cardiovascular disease and cancer that earlier would be expected to have killed them. A major question addressed is, to what extent chronic diseases will be curable in the 1990's and beyond, or whether society will be faced with an increasing proportion of disabled, dependent elderly.

For some of the issues mentioned above, the period between 1984–2000 seems to be relatively short to anticipate major changes. If, for instance, one anticipates that only minor successes will be achieved in dealing with chronic disabling diseases, it is argued that the volume of disabled, dependent elderly will not change substantially between 1985 and the Year 2000. Therefore, it is anticipated that a number of alternative autonomous changes in the so-called "supply side" together with changes in the economic situation will have greater influence on the level at which health services can be provided for the elderly in the future.

With the recent developments in molecular biology, it is not entirely inconceivable that within the next few decades much of the human genome could be known and each individual's total risk-factor pattern could be comprehensively mapped at birth. If this proves to be the case, such knowledge could drastically influence health status patterns and long-term planning for health care, as well as throughly uprooting traditional patterns of the social position of the individual and social and disease stratifications. Reasoning along the same lines, the report envisaged a number of alternative long-term consequences of future developments in modern (bio) electronics (e.g. to deal more effectively and efficiently with some of the handicaps of the elderly).

In summary, deliberations in the committee along the lines mentioned above combined with obtaining the opinions of outside experts, has provided a fruitful basis for the preparation of context scenarios for possible and probable future alternatives and their consequences with regard to the health of and health services for the elderly. A system has recently been set-up by the Government of the Netherlands, by which these scenarios will provide policy makers with adequate material to test their different long-term health strategies in dealing with the coming "gerontic boom".

Senator GLENN. Thank you, Doctor. Thank you very much.

Now we get to our question and our discussion period. I welcome this because there are so many questions that we have that we would like to have answered very much.

We have concentrated so far today mainly on the areas of how we administer programs that take care of the existing situation.

I would like to ask each one of you, perhaps in turn, to also tell us what you are doing regarding basic research in some of these areas. That was touched on very briefly, I believe, by Dr. Grimley Evans. We are doing some research in this country on the basics of aging. These are areas that to me are intensely interesting because they are trying to perhaps forestall or take care of some of the problem before the bad thing occurs.

Dr. Svanborg, while you were talking, I was making a couple of notes here about your comment on running some of the studies with Japan. I was wondering whether there are differences of genetic or nutrition or climate or is it medical availability or is it a new medical awareness, that the people are more aware of health problems and take better care of themselves?

I also was interested on page 5 of your longer statement that only 25 percent of the very old were without mental problems. What is the tie in there? Is aging more a psychological matter that affects the body than the other way around?

I would appreciate any of your comments on what you are doing in the areas of research on the nature of aging. Is it cellular, genetic, nutrition or all of those things? What do you think the most advantageous research efforts could be for all of us to work on together?

Now, that is more of a statement than a question, I guess, but I would appreciate your general comments on what you think and what you are doing in the area of basic research to find out why aging occurs, as well as how we could better work together and where you think our research should be directed.

Dr. Svanborg, would you lead off for us on that?

Dr. SVANBORG. Thank you, Senator Glenn. We have only recently reached the situation when we can handle large materials of data for research purposes—through computer systems. The problem of identifying human aging versus disease is so complicated. We have in clinical medicine lived with the attitudes, presented by many medical authorities, saying that old persons are not only old but also sick. Old and sick! We know, however, and mainly by following population samples longitudinally, that a rather high proportion also of elderly aged 70 to 79 still are healthy. This has allowed detailed studies of cellular aging, organ aging, and general functional aging also in healthy human beings. Further epidemiological studies of the elderly, their aging and state of health must be performed. Of course, more detailed investigations have to be done also during these experimental conditions that can be obtained only in studies in experimental animals.

The question of causal relationship is fascinating but of course extremely difficult. We have, as I said, three cohorts, where we know very much about their previous lives. We have, as a matter of fact, added historians to our group to know more about how their earlier lives were, and why they were in the state of vitality or the state of health at old age—to what extent this is related to their previous lives.

A most fascinating thing that we have found is the importance of previous and present lifestyle for vitality. I learned when I went to medical school that the only way to guarantee good vitality at old age should be to choose the right parents. But now we know that life style and environmental factors are important.

The identification of environmental factors is so complicated. For example, in Sweden farmers live longest. In Japan farmers seem to live the shortest. We need international comparisons and we need a lot of data.

Furthermore, even if we start with preventive/postponing attempts as late as the age of 70, it must be possible to postpone and prevent to a much higher extent than we previously have thought.

May I add one more thing? I know that our figures have been used also in the USA as an indication that "although the Swedes become older and older, that does not matter, because they become healthier and healthier". They have implied our data so that the period of life, when we need care, should become shorter. That is a dream! That is something we hope! But we have to be aware that on the same time as we seem to postpone aging and the many manifestations of aging, we live longer. So at the present time, as far as I know, no one has been able to show that the time we need care at old age is compressed. No one has been able to show this, but we hope it will be so some time in the future.

Senator GLENN. Can you give us any hints as to why you think the Swedish age life expectancy is what it is, compared to other nations? Is it climate, nutrition, national health care programs?

Dr. SVANBORG. A very simple question.

Senator GLENN. It is easy to ask.

Dr. SVANBORG. The prolongation of life expectancy at birth has in Sweden during the last decades to a minor extent been due to a still occurring lowering of child mortality. Mainly for females but nowadays also for males there is a significant increase of further life expectancy also at age 70, 75, and 80. Generally, lowering of age-standardized mortality at adult and old life has meant more for increase in longevity (mainly for females) than the lowering of infant mortality.

I think, of course, the whole question of good care at a young age, good nutrition, avoidance of infections and the availability of good medical care, et cetera, is of utmost importance. Very often it has been stated that the influence of medical service for longevity should not be important, but it definitely is. We would like to be able to say that a certain factor has a certain "weight". You can say that smoking has a very negative influence apparently not only on lung cancer but also on some manifestations of aging. You can say that alcohol abuse has, et cetera. But the other factors have to be proved.

Senator GLENN. Thank you very much, Doctor.

I would also like to call on Dr. Butler who, perhaps, has a better view of what kind of questions should be asked at a hearing like this than I do. I would like to have his comments because he has followed the research and instituted some of the research in this country, most of the research in this country. And perhaps he could address questions to our panelists that are more to the point than I could. But I would be interested in your comments on this, Doctor.

Dr. BUTLER. Well, one preface, before I ask a question, is that you may recall that one of the experiences I had when I was director of the National Institute on Aging was talking to various Senators and Congressmen and finding that some understandably are really fearful about supporting the National Institute on Aging and aging research for fear we might find out that with the prolongation of life there are many people who would be debilitated and suffer from a wide range of disorders, such as Alzheimer's disease.

So it is very clear that we face the issue based on science, as you just did, Senator, because as we learn of the fundamental biological mechanisms of senescence that predispose to these debilitating diseases, we will do much, it seems to me, to offset the fear by creating a healthy and appropriate prolongation of life.

I would like to hear Dr. Hollander comment on the issue of basic research. I have often said we did get a way to get rid of polio. We began a campaign against it in 1935. I think the Alzheimer's disease, for example, can be the polio of geriatrics, and the nursing homes can be the iron lungs of geriatrics.

I wonder if Dr. Hollander might address the issue of fundamental basic research.

Dr. HOLLANDER. Well, thank you, Dr. Butler, you took me by surprise, because I would have preferred not to talk primarily on basic research, but I think that we have to realize that in order to solve the problems of the aged, fundamental or basic research is essential. However, we have to be realistic that the outcome of this research will not be achieved tomorrow, and especially in the field of senile dementia of the Alzheimer type. It will take tremendous efforts, both from devoted gerontologists as well as from researchers in the neurobiological sciences to achieve a breakthrough in this area.

Now, if I may misuse this time to explain that it is being accepted by the members of the European Community that basic research is essential for the promotion of health in the elderly. The European Community's program on basic research in aging is—under certain conditions—open for collaborative research to countries outside the European Community, as you will be well aware.

There is another issue that we must consider. We have to realize that due to changes in lifestyle there are changes in the pattern of disease. Dr. Svanborg, in his presentation this morning, clearly demonstrated that a difference in life expectancy exists between males and females.

Now, if you examine carefully what happens at the moment, you will realize that there is an increase in smoking among females and you can also observe that deaths from lung cancer are also increasing in the female, both on our side of the ocean and yours. Futhermore, deaths from myocardial infarction are declining in the male and one can envisage a future where the gap between the life expectancies will close, especially if more risky lifestyle patterns become part of the cultural background of the females around the world. This alone, without any other measures, may in itself lead to a sustantial saving in health dollars. From this point of view you will see that I am an ardent promoter of the women's lib movement.

Thank you.

Dr. BUTLER. You have won a lot of friends.

Dr. Forette, I would like to change the subject a little to address something Dr. Svanborg knows I am extremely interested in and we have worked together on, and that is the issue of a productive old age. And what I would like to ask you is that the United States and Japan, as far as I know, are the only two countries that have been elevating the retirement age up, that is, expecting and help-

ing support the continuing productivity of old persons. France, but not France alone, has lowered the retirement age.

I wondered how you feel about that from a health perspective?

Dr. FORETTE. First, I just would like to tell you that mobility is greater in men even if risk factors increase in women.

Dr. BUTLER. Still.

Dr. FORETTE. In France, in fact, the age of retirement was lowered, but it wasn't for gerontological reasons. It was only for political reasons because the problem of unemployment in France is a very, very difficult problem to resolve. But I do think, as a gerontologist, that it was a bad decision on a gerontological point of view and on an economical point of view. It will be impossible in some years to keep this measure, so I do think it was an inappropriate decision.

Dr. BUTLER. Thank you.

I have a question for Dr. Grimley Evans.

I am envious that you have 15 professors of geriatrics in 30 medical schools. And I did the arithmetic and we would, therefore, have 64 professorships in geriatrics in the United States. We have about six and they are not even all filled because we are such a young field in the United States that we haven't been able to fill the chairs yet that have been endowed.

My question to you is, how did it happen? Was it a governmental effort? Was it a broad social decision? Was it a reflection of the medical establishment? How would you describe the fact that you have been so fortunate as to develop such leadership in geratrics?

Dr. GRIMLEY EVANS. Very definitely it arose from a concern within the National Health Service for the growing problems associated with the aging of the population. It is significant that most of the chairs in geriatric medicine have been set up, not with money from the university grants committee, which normally funds academic developments, but by funds from the National Health Service, often fostered by the Department of Health and Social Security. So it has been an indirect Government health service policy, rather than arising from university initiatives.

There has also been very strong pressure from the public to try to make sure that doctors were better educated in care of the elderly. This is perhaps another reason why we have fallen behind somewhat in the field of gerontological research. The chief purpose of the chairs of geriatric medicine that have been set up was to educate and produce more competent, more interested doctors.

Senator GLENN. Just a followup on geriatric studies, are you putting any effort into the basic research I mentioned a moment ago with your gerentological experts there?

Dr. GRIMLEY EVANS. Yes; we are moving toward that, very much so. I think probably we should be capitalizing upon one of the scientific strengths of England, which has been the epidemiological approach. I am very interested and impressed by the way that a lot of the age-associated changes which afflict us at present are due to environmentally induced changes, rather than intrinsic biological processes. I think a comparison of aging patterns under different social circumstances is probably going to be a basic scientific paradigm that we will follow in Britain because it is an area in which we have traditional expertise.

This is also one area where international cooperation could be vital. There is, for example, the astonishing finding published 2 years ago of a difference in the prevalence of Alzheimer's dementia between New York and London. This may be some kind of statistical artifact, but it obviously needs to be pursued and may lead us toward identifying environmental causes of the disease factors. The importance of environmental factors is that they are potentially modifiable in the short term, whereas I suspect for many intrinsic biological processes, if they can be modified at all, is a very much longer term exercise.

Dr. BUTLER. I have a question for the Senator.

Senator GLENN. That's unfair. None of that.

Dr. BUTLER. Remember, Senator, that our distinguished visitor from the United Kingdom pointed out that the National Health Service helped fund the support of geriatric education professorships. [Applause.]

It so happens that Medicare, which was a marvelous social invention, passed into law in 1965, does provide for graduate medical education. In fact, last year, some 2 billion—that's a "b,"—$2 billion was devoted to graduate medical education, which I think is fine. But it is interesting that none of that money has really gone to the development of geriatric medical education, in spite of the fact that the Medicare beneficiary is presumably the constituency which should be provided with doctors with appropriate education.

I just wanted to bring that to your attention.

Senator GLENN. I'm with you; I'm with you.

I will tell you, we are faced with big budget problems and I don't want to get this off onto a political note today, but we are faced with big budget problems in Washington, that I can just say as a flat statement.

One of the areas that I have been most concerned about—and this gets a little off just geriatrics—but one of the areas I have been most concerned about is our cutback in support for higher education, some of the areas that you are talking about. I think this Nation of ours grew to its position in the world not just because of the natural resources we had in this country. We've had purple mountain majesties and rivers flowing to the seas and all those things we sing about in this country. But also, from our founding days, we did a couple of things that it seems to me moved us ahead in a tiny little timeframe in history, just a couple of hundred years—with all due respect to the United Kingdom. We really did two things which it seems were just so fundamental.

First, we put more emphasis on basic fundamental research. We started learning the new things first and we put these into business. We employed people and we had business. And one thing begets another and we went on with that kind of a situation where we learned more things first. And then we had other nations following us in business and technology and airplanes. It was just everything you could name. The green revolution in agriculture didn't happen overnight. It was because we did basic research.

To cut back in the areas of basic research for budgetary constraints right now I just think is flat wrong.

And second, we put more emphasis on basic education for every single person and more higher education than any nation in histo-

ry, prior to our time. To me, that's been our seed corn in this country. It has been research and educated people, and I think other nations around the world following World War II where we put forward probably the greatest economic missionary effort in all history to help other nations' recovery, and they did, and they saw what the goose was that was laying the golden egg in this country and they put more into research and education. And after 30 or 40 years, it is beginning to pay off. We are beginning to be outcompeted by some nations now in certain fields.

So to me the handwriting is on the wall, and no less in medicine, education, and gerontology than in these other fields, because if we lay down our emphasis on basic fundamental research in whatever area, whether it is this or—why do cells change? We don't know why cells change. Does the mind control the body or does the body control the mind? Why is it, Dr. Svanborg, that 23 percent of the very old, only 23 percent, are without mental problems. Does the psychological lead the body downhill or does the body lead the other?

We need basic research in all these fields, as well as the education Dr. Butler was talking about. I think when we cut back in those particular areas, we are cutting our seed corn for the future. We are eating our seed corn for the future and I think that is a mistake.

I didn't mean to make a whole speech. [Applause.]

Dr. SVANBORG. I never stated that only 23 percent of the elderly lack mental problems. In my written statement, I discussed a study of the needs of the elderly in nursing homes. In Gothenburg, with about 43,000 inhabitants, 18.2 percent of the population was 65-plus on December 31, 1985. Of the 77,000 people 65- plus, 2,950 long-term care beds were available within geriatric clinics (750 beds) or nursing homes (2,200 beds). Among the findings of a survey of these beds was that only 23 percent of the patients were without mental problems. On the contrary, we think there is a lot of overdiagnosis of mental disorders in the elderly.

I think, on the contrary, that we as medical people have been biased by seeing many of the sick elderly. At research in the field of epidemiology, and really a multidisciplinary research including both basic science, clinical medicine and applied science, we are astonished to find the high level of vitality in the elderly. At the age of 70, senile dementia—organic brain disorders—are uncommon, only around 1.5 to 2 percent. And it is only at ages of about 80 when organic brain disorders become more common. We don't know so much about the real occurrence of senile dementia at ages 80 to 83 in our sample, because we need a larger followup time. By increasing age above 80, organic brain disorders will obviously be more common there. Up to very high age the majority of people will preserve a good intellectual function.

Dr. BUTLER. I wondered if both Dr. Svanborg and Dr. Grimley Evans might speak a moment about the opportunities for international collaboration with regard to longitudinal studies. I really didn't mean to leave out Dr. Forette and Dr. Hollander. All four, I know, have had a long interest in such collaboration, and following up on Senator Glenn's appropriate emphasis upon not only basic

research, but upon epidemiology, how might we go about developing better collaboration? Would it be through the private sector? Through WHO? Through governmental agreements? Across nations? It would help address what clearly is one of the most staggering challenges that we have in this country, the increased numbers of older persons.

Dr. SVANBORG. Well, I think that basic research must be a part of epidemiologic studies. I hope I was not misunderstood.

Dr. BUTLER. I am trying to think of how we can get people to work together; how do we organize that?

Dr. SVANBORG. Well, I think this is one of the challenges of studying aging, namely that we have to work together. It has to take the form of a multidisciplinary research approach. I am referring to Senator Glenn's question to me about causative factors. Some of them are social; some of them are nutritional; some of them are due to infectious disorders; some of them are genetic. This is really a challenge, to do multidisciplinary research, and definitely including basic research.

As far as international comparisons are concerned, we have been talking about that during the last few days, that we need some sort of coordinating group to improve possibilities for doing international comparisons of aging. Of course, such comparisons must also include developing countries.

Dr. GRIMLEY EVANS. I assume the question essentially relates to the politics and the management and organization of enterprises of this kind.

My feeling is that the best way forward would be for a group of interested and experienced scientists in different countries to set up a protocol of the sort of studies that could be done, what their likely payoff was and their feasibility. This could then be presented to the funding agencies of the countries for backing. I would be wary of trying to do it the other way, working from governments or agencies down to scientists, because so often I find that research activities organized that way become, as it were, politicized activities, but then are very disappointing scientifically in their outcome.

I feel that the impetus for international studies at this time, which I think are immensely important and where I think there are immense opportunities at present to be exploited, should come from an expert group who would themselves be practically involved in carrying out such work.

Dr. BUTLER. Very good suggestion.

I think that perhaps later when Dr. Macfadyen is speaking he might want to refer to the possibilities of such collaborative efforts. Thank you.

I think maybe it is always so exciting to hear so many fruitful ideas. Unfortunately, I guess, we do have to move on.

Senator GLENN. I would like to do one other thing before we have this panel step down.

Dr. Svanborg, you agreed to be coordinator of this panel, and I don't know whether you had any questions for your colleagues or areas there that you wish to discuss that you wish to discuss as a panelist.

Dr. SVANBORG. I don't know if we have any time for short questions?

Senator GLENN. We might have time for one or two. We said we would end this panel by about 11 o'clock. We are a few minutes over. So maybe we could take a couple of questions here. I think that would be a good idea, Doctor.

Anyone have questions?

I see one way up in the corner. The lady up there?

AUDIENCE PARTICIPANT. Yes, I have a question. Those of you who are researchers, I am impressed with the ability of some of the countries to use their findings, basic and applied research, to inform policy. One of the things we seem to do in this country is to set health and social policies in spite of research findings rather than because of them.

Dr. BUTLER. The hard ones go to you.

Senator GLENN. Well, I guess my comment would be that is one reason why we are having the hearing here today. The Senate Special Committee on Aging that is sponsoring the hearing is dealing very much in this and hoping to make very practical recommendations.

I think you are right. I think too often in the past we have had some little study done by one or two staff people in Washington that suddenly becomes the gospel for some reason or other. And many of you out working in the vineyards, in effect working with people, you are there, you know what the problems are, and maybe your views have not been recognized or listened to enough. That is one of the things we are trying to do with hearings like this, to get the views. We hope that if you have comments on programs you think would work, you would avail yourself of that yellow sheet out there that I mentioned at the beginning.

I don't want to just send this back on you, but if you have some suggestions please do, really, send them to us. We will have the staff review them, we will talk about them, we will make them part of our committee report. I can't guarantee everything will get published, but one of the things that we are trying to do is make certain that in future policies, particularly with regard to the aging, that we do have practical research, we have practical programs. I would like to know more about why the Japanese live longer, why they have now outpaced the Swedes, why they are better than we are. Is it nutrition? Is it cells? Is it psychology of aging? Is it that people feel needed so they stay vibrant and alive longer and this all feeds on itself? That is a factor we haven't really addressed here yet.

One more question and then we are going to have to move on.

AUDIENCE PARTICIPANT. The ability to attract medical students graduating from the programs into geriatrics in this high-tech society is a problem here in the United States, and I am just wondering whether or not it is a problem in each of your countries.

Dr. SVANBORG. I am going to refer that question to the homeland of geriatric medicine, Prof. Grimley Evans.

Dr. GRIMLEY EVANS. Thank you for specifying who you were talking about there.

There are two things that have happened in Britain to solve the recruitment problem that we had 20 years ago. The first is that because of the way that we fund medical education, we are herewith recruiting doctors from nonmedical families. And this has been

quite important because they bring to their medical education an open mind, not troubled with those class distinctions of medicine of 30 years ago still embodied in their fathers or mothers. When I was a medical student I was among a minority of people coming from nonmedical families. Now, because medicine is a highly sought after career, we are recruiting much more widely.

The second faction that is emerging among medical students is that not all of them wish to pursue the very narrow, medicine of expensive specialization, the so-called "high-tech". Many want to take a much broader view of medical care and enjoy having a very general approach to people who are ill. And they wish to do that in a hospital setting where there is the stimulus of modern medicine advancing, but they don't want to focus on a specific organ or a specific disease. And I think you would probably find as we have that there are large numbers of doctors who would like to practice that kind of medicine if they could be assured of good career prospects. That, of course, is what we have been able to offer in geriatric medicine which is now an established career.

Not everybody wants the high-tech modernism and a more holistic approach to the individual is very attractive for a certain proportion of medical students.

Dr. SVANBORG. May I add, I think that one reason why we have had difficulties to attract young people to geriatrics has been the lack of knowledge concerning age and human aging especially. We have been faced mainly with theories. Now, when we have acquired more and more knowledge, we can show tables and we can show figures in the same way as other disciplines can, we are facing a much, much better possibility to attract people also to geriatric medicine.

Senator GLENN. That's very good. And I think another factor there too, and now time is really getting away from us, but another factor is that I think we are just beginning to deal with the changing demographics of our own country and other nations too. You know, in the old days the family took care of the family, and you grew up probably in the same community and you stayed in the same community. And when people got old in the family, why they were still part of the family, they were down the street and you took care of them. Now, my own family situation is not at all unusual. Annie and I are living in Washington, DC. Annie's mother lives in our home in Ohio. My daughter is married to a physician who lives in Colorado. My son is a physician living in San Francisco. We are clear across this country. We are 3,000 miles apart as a family. And we personally can visit back and forth quite often, but what happens with families that cannot travel that much and take care of each other? It gets to be a problem. Then it becomes a problem for the community or the State or the Nation to deal with. I think we are still in a transition period from some of those earlier days and I don't think we have really learned how to deal with this thing as far as public policy goes. Part of it is research; part of it is public health programs of one kind or another, nutritional; part of it is information; part of it is whether we set a termination of where people will be employed, whether it is the lower levels of France, or what we are doing. We are tending to the other direc-

tion here now. So that may keep people going to an older age if we let them work longer.

I don't know. These are all things that we are having to deal with in what I see as a transition period. And then you couple on top of that the fact that divorce rates now are in the upper 40 percent range in this country, the fact that more women are in the workplace, and there is unequal pay for virtually the same kind of work. There are different retirement benefits. Social Security is treated differently for women than for men in some situations. We need to correct that. That makes a different situation. It is a whole transition period we are going through that is very difficult to deal with, and that raises enough questions we could talk here all day just on that, but we are grappling with it anyway.

We are late now and I do appreciate the panel here. This is very interesting. We could go on all day just with this panel and I do appreciate your efforts.

Dr. Svanborg, we appreciate your coordinating the panel.

What I would like to do, we don't want to see any more osteoporosis or anything like that that we can help, so I would ask everyone to stand and stretch and get a little exercise right here. And if you feel the need to go outside for a few minutes fine. We will convene again in 5 minutes with our next panel.

[Recess.]

Senator GLENN. The second panel, Dr. David Macfadyen, Prof. Nana Van Ham Apt, Dr. Ma Haide, Dr. Jorge Litvak, and Julia T. de Alvarez, if you will take your places, please, we would appreciate it very much.

By the way, I would like to make an introduction here before he gets out the door—Bill, if you could stop up there at the top of the steps a moment—Bill Oriol, who was the staff director for the late Senator Frank Church at the time of the 1977 Graying of Nations hearing. He ran those hearings and did a superb job of it. [Applause.]

Our moderator for panel II today, we will take care of the introductions of the other members of the panel as they speak, is Dr. David Macfayden, who is manager of WHO, the World Health Organization's global program for health of the elderly. And you are based, I believe, in Denmark?

Dr. MACFADYEN. Yes.

Senator GLENN. He is based out of Denmark.

Dr. Macfadyen attended medical schools in his native Scotland, with post-graduate studies in internal medicine; a specialist in community medicine; and his medical career has taken him around the world a number of times.

Dr. Macfadyen has submitted a document for the committee record, which presents a major initiative for international research on biological aging. I look forward to learning more about this initiative.

I appreciate your participation, Doctor, today on our panel dealing with international aging beyond Europe, which we have concentrated on in the first panel today. We welcome you as moderator of panel II today. Thank you very much.

STATEMENT OF DR. DAVID MACFADYEN, COPENHAGEN, DENMARK, MANAGER, WHO GLOBAL PROGRAM FOR HEALTH OF THE ELDERLY

Dr. MACFADYEN. Thank you Senator Glenn.

You reminded us at the outset that what brings us here is the IAG Congress and the theme, aging, the universal human experience. The universality of that experience is manifest in the panel today.

It is a happy coincidence that the International Association of Gerontology has chosen the United States this year to celebrate the universality of aging because it was here 40 years ago that the United Nations was born.

In 1982, when the United Nations convened the World Assembly on Aging in Vienna, some of the idealism and aspirations of 40 years ago reemerged. It was clear to all those there that aging is an international issue that is nonpolarizing, neither between the East and the West nor between the North and the South. Indeed, you will be hearing from the panel members that here is one area in which the South has something to tell the North; something in terms of respect for the family; something in terms of family cohesion; something in terms of social solidarity.

Dr. Robert Butler was part of the World Health Organization's delegation to the Vienna assembly, and he will confirm that several delegations saw the potential of international cooperation on aging as a means to constructive collaboration and dialog, at best to improve the human condition and at least to improve human relations. This was the view taken by several large countries there, notably France, and by many of the smaller countries, particularly by the Dominican Republic and I am particularly pleased that we have Ambassador Alvarez here.

Now these countries struggled in Vienna, in the event with very little success, to achieve a followup to Vienna that would institutionize universal efforts on behalf of an aging universe.

In presenting this historical prospective, my aim is to renew the appeal for a mechanism to provide solidarity among the elders of the world. I especially hope, Senator, that this appeal will achieve resonance in your country, since the United States fulfills all the conditions necessary to play a leadership role. You have an enviable accumulation of intellectual capital in your seats of learning and research, such as this institution that we are in today. You have an effective mechanism for national solidarity among retired persons, as has been clear to me from my contacts in WHO with Mrs. Ostrander of A.A.R.P. Your elders adhere aggressively to attitudes that are health oriented. You are a continental nation with a geography that models the world's. You are a multiethnic country.

So I would like to begin my presentation by posing a question to the audience here, and that is: Does the United States have the will to provide the leadership to push internationalism into its second wind and carry it forward with a renewed sense of purpose within this clearly defined area of aging?

I am somewhat embarrassed to be the first speaker here today, because I have no particular wisdom in this field. I go to a country and I stay for a week and I leave. The people who have the wisdom

are those who are there 52 weeks of the year. And so I would rather make my presentation as to the document I have submitted after Ambassador Alvarez has made her presentation, and after the panel members have spoken, with your permission. However, I would like to say something about the relevance of the contribution you are going to hear from the developing world here today. The logo of the World Assembly on Aging was the banyan tree—the banyan tree is a large tree that grows in Africa and in Asia. It is a place where meetings take place. It is a symbol of social cohesion, social interaction.

I would like to tell you a story about the banyan tree. There were three animals once under a banyan tree and they were arguing about who was the oldest. There was a monkey and an elephant and a bird. The monkey said he was the oldest because he was the first to find that tree. The elephant said he was the oldest because when he came it was just a bush. And the bird said no, he was the oldest because he dropped the seed and that banyan tree grew from it. That is a story that is told in developing countries and the end of that story—it is a story with a moral—is that the elephant and the monkey then respected the bird as being the oldest.

Now these sorts of parables and stories are very much part of the culture of developing cultures. They have disappeared from our own. I do not know the parables, the stories, the folk tales that my grandparents had, and my children know even less. So I am going to introduce first Prof. Nana Van Ham Apt. Prof. Nana Apt is from Ghana, and she has inspired me in the past with these sorts of stories aimed at trying to keep her culture alive and to keep the traditional values of her society.

So can I introduce, with your permission, Senator Glenn, Prof. Nana Apt.

[The prepared statement of Dr. Macfadyen follows:]

PREPARED STATEMENT OF DR. DAVID MACFADYEN

INTERNATIONALIZING THE STUDY OF AGING: PERSPECTIVES FOR IMMUNOLOGICAL AND NEUROBIOLOGICAL RESEARCH [1]

This document summarizes proposals made to the World Health Organization by a group of scientists to internationalize the study of biological aging. This initiative is designed to provide a rational basis for preventive medicine for the later years of life. Major advances in the prevention of age-related diseases can only be expected by sustained application of basic research.

The feasibility of coordination scientific efforts has been demonstrated by the concerted action programme on aging of the European community. Coordination of such efforts, worldwide, would help to elucidate the process of aging through studies in different environmental settings and would serve to accelerate the transit of scientific information into health practice.

The text which follows proposes the creation of an international Immunological and Neurobiological Aging Research Programme, under the sponsorship of the World Health Organization. Funds to support this Programme would be solicited from governmental agencies, private institutions and foundations. Disbursement of funds would be the responsibility of scientists serving on a Steering Committee who would be supported by a WHO executive secretariat.

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[1] Summary of a WHO Scientific Meeting on Perspectives for Immunological and Neurobiological Research and Aging. Geneva, 13–16 May 1985.

1. The world's elderly: a population exploding

Today, elderly people constitute one in eleven of the world population. And unprecedented increases are predicted (Figure 1). Half the women born in the United States in 1980 can expect to reach the age of 81.[2] As the attainment of national Health for All targets compound this demographic transition, the pattern of diseases will change rapidly to one featuring chronic disabilities requiring extraordinary medical and societal resources. Indeed the cost of caring for the coming cohorts of elderly people threatens the continued economic advance of some countries.

2. Aging research: a socioeconomic necessity

Clearly, the worldwide increase in the number of elderly people warrants worldwide concern. It is proposed, therefore, that the World Health Organization programme on Health of the Elderly serve as the focus for a scientific initiative to internationalize the study of biological aging. The purpose of the initiative is to plan concerted action to advance our understanding of the aging process and of its influence on the wellbeing of elderly people.

There is the unpleasant prospect that the quality of life may decline, as life expectancy increases.[2] Cancer, cardiovascular and cerebrovascular diseases are already major diseases of the elderly population (Figure 2). Such diseases as Alzheimer disease, osteoporosis and recurrent chronic infections are now being recognized as further threats.

The most effective way of providing for better quality of life for the elderly, through the reduction of chronic debilitating illness, is the preventive approach. Major advances in the prevention of age-related diseases can only be expected from long-term application of basic research to this complex phenomenon, as the history of modern medicine demonstrates.

In short, the scientific initiative to internationalize the study of aging is designed to provide a rational basis for preventive medicine for the later years of life. The coordination of worldwide efforts would help to elucidate the process of aging through studies in different environmental settings, and would serve to accelerate the transit of scientific information into health practice.

In certain areas, such as the optimization of immunization, early practical benefits are envisaged. However, the fruits of this endeavour are anticipated in the 1990s, the era in which the aged population itself begins to age (Figure 3).

The phenomenon of aging

Scientific medicine's most dramatic achievement are seen when strategies are based on a single cause concept of disease, best illustrated by WHO's success in ridding the world of smallpox. However, this single cause approach is only as good as the definition of the disease entity. And, in this context, aging is not an adequately defined entity. Different cells age at different ages. For example, cell division of hair follicles may be lost in youth, while the division of sperm producing cells may continue into old age. Nevertheless, the general public is assaulted by claims that a unique cellular process accounts for senescence. This is the modern counterpart of the alchemist's search for the elixir of life.

The present programme of serious scientific endeavour would be mounted with only a fraction of the sum expended on such rejuvenation therapies.

Scientists see healthy survival as resulting from an interplay upon cells of "outside" stimuli plus inherited "inside" controls. Knowledge of the inherited controls, identification of relevant genes and determination of populations at risk from particular organ failure are important goals of this coordinated scientific effort. Failure of a cell line to adopt to the outside environment may be partly responsible for degenerative disease of old age, high tumor incidence and central nervous deterioration.

Progress in human organ transplantation has developed from studying the inside controls of inbred animals, and gerontological research follows the same path from inbred mouse to outbred man.

Aging research in immunology and neurobiology: a special type of challenge

Aging research represents a different type of challenge. The major tool for determining the factors responsible for age-related disease and for identifying effective measures to prevent them is the prospective, longitudinal study. Such studies are beyond the scope of the single investigator. Moreover, the classical short-term re-

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[2] Use of Epidemiology in the Study of Aging, World Health Organization, Geneva, 1984. Technical Report Series No. 706.

search grant is clearly not a mechanism that will guarantee the short of long-term commitment and stability of manpower which such research necessitates.

Health and longevity are determined partly by genetic factors that act on the universe of man. However, they are also influenced by environmental factors which vary from one socioeconomic or nutritional setting to another. Studies in various parts of the world would help to disentangle these influences of nature and nurture.

The translation of scientific advance to improved wellbeing of the world's elders requires coordination between researchers from different disciplines and from different geographical areas. The establishment of a scientific coordination body could ensure: coordination and standardization of research protocols; joint evaluation of major scientific findings; and assistance to researchers in parts of the world where aging research receives little support.

In addition, such a body would help obtain the financial means to perform the above functions and to ensure the disbursement of funds solely on the basis of scientific merit.

Decline in immune function with age

Infectious diseases are frequent in the elderly. They are distressful and, in the case of influenza and pneumonia, often have fatal consequences. Decline in immune function—immunodeficiency—is the central cause of these age-related infections.

A link is also hypothesized between immunodeficiency and the increase of cancer with advancing age.

For other age-related diseases, the cause is unknown.

One hypothesis linking age-related disease manifestation is that of failure of adaptation or homeostasis, a mechanism which, until the later stage of life, protects the internal world of the body from the outside world of a harmful environment.

A buffer between the environment and the individual is provided by the immune system. Failure in this important buffer system is likely to manifest itself in impaired homeostesis. In the immune system, dysequilibration is expressed in specific changes, listed in Annex 1.

Categories of research

Three categories of investigation are undertaken to study change in immune function with age, namely, cross-sectional and longitudinal human studies plus animal studies.

Cross sectional studies have highlighted the problem of selecting subjects without associated diseases. The SENIEUR protocol, developed within the framework of the EURAGE Concerted Action Programme on Aging of the European Community, is an attempt to solve this problem. Selection of subjects is therefore made according to defined criteria from immunological studies by different individual research groups. What remains to be standardized is assaying systems for use in human studies.

Prolonged observations of the same healthy human beings by investigators from different disciplines allows differentiation of normal physiological changes from the manifestations of disease—in a highly cost-effective way.

The shorter life span of animals allows preventive measures or therapeutic action to be evaluated more quickly.

Neurobiological aging and the immune system

Bereavement, depression, change in living conditions and other stressful events have an adverse effect on the health of the elderly: indeed, one longitudinal study shows increased mortality among widows and widowers.

For the first time, a link between such psychosocial stress factors and the function of the immune system is being identified as the body of experimental evidence grows on the communication between the nervous and immune systems. Neuro-endocrine outflow from the hypothalamo-pituitary axis can influence immune function through glucocorticoids. The autonomic nervous system has direct fibre connexions which innervate precise regions of primary (bone marrow and thymus) and secondary (spleen, lymphs glands) lymphoid tissue. Thus, direct channels exist for neurotransmitted influence on immune function. And the pattern of such innervation changes with age.

Communication in the reverse direction also takes place. "Sensory" channels appear to exist that can provide the brain with information concerning immune function. Indeed apparent immune signals to the brain may impact adversely on brain function.

This two-way communication between the nervous and immune system depicted in Annex 2 shows promise of revealing the elusive link between psychosocial and environmental factors and the state of wellbeing of the aging individual.

Recommended studies

The WHO Scientific Meeting recommendations focus upon action in two areas, human immunogerontology (including the optimization of immunization in the elderly) and research relating neurobiological sciences with immunology.

Human immunogerontology

Epidemiology is the discipline best suited to answering the question, what are the factors which help us to maintain health as we age? Admission of people to immunogerontological studies would be based on the criteria of the SENIEUR protocol and such efforts of standardization should be extended to laboratory methods and to reference values. Risks for developing age related illness should be determined by long-term follow up of human populations. The role of specific nutrients in regulating immune competence and susceptibility to infection should be investigated in elderly populations. International epidemiological studies should be undertaken on the role of nutrition in the immune deficiency of aging and in the development of age-related illness. The phenomenon of high and low response by the elderly to immunization provides research opportunities for genetics, molecular biology and epidemiological research and such research also offers promise of immediate practical benefit.

Research relating neurobiological science with immunology

The international research effort would intensify existing investigations of brain aging at the level of the gene as well as neurobiological studies in animals of the effects of altered immune response on brain function and neurotransmitter metabolism, and vice versa. Patients with neurodegenerative disorders (Alzheimer disease, Parkinson's disease) are likely to benefit from studies investigating the relationship between the nervous and immune systems. Particular attention will be paid to the possible effect of psychological and physical stress. Neuroendocrinological assays would therefore be extended to generate stress-hormone profiles which can be correlated with immune function profiles.

An International Immunological and Neurobiological Aging Research Programme

The scientists propose the creation, under the sponsorship of the World Health Organization, of a special programme devoted to immunological and neurobiological aging research (INARP). The scientific assessment of projects and decisions concerning the disbursement of funds would be the responsibility of a Steering Committee comprising scientists active in the field plus representatives of major national and international research groups. The programme would be supported by a WHO-based secretariat.

An immediate WHO initiative is proposed to establish a coordinating structure to facilitate international cooperation between research groups and reference laboratories, as an extension of the existing European network on aging research (EURAGE).

One task for international research is to establish standard methodology and research protocols. For example, the SENIEUR protocol could be applied in different regions of the world with a view to obtaining reference values concerning immune function in aging. Survival and morbidity data on this international study population would assist in designing intervention strategies. They key to the development of such strategies is the longitudinal study, in which aging individuals are studied at intervals throughout life. Such studies are few in number and they require logistic support in order to exploit their full potential for multidisciplinary research.

An international research and training programme would have a considerable effect in disseminating technical knowledge and improving medical skills in the assessment of and care for aging populations. It is desirable that the international research and training be conducted in institutions in which a wide range of biomedical research is being pursued—and should not be conducted exclusively in Institutes of Gerontology. A key to this is recruiting young investigators to the field. It is essential therefore that the Programme be able to distribute research training grants.

If INARP is to have an impact, it must however go beyond research coordination and research training. It needs to generate initiatives and solicit research grant proposals that are relevant to the goals of the programme. Selection of research proposals for funding would be undertaken by the Steering Committee, assisted by peer review.

To ensure that the maximum of available funds go to supporting scientific research, INARP meetings would be held, economically, in conjunction with general scientific meetings in immunology and neurobiology.

Special funding needs arise for animal studies. To enable investigators in small centres to use animals of the same genetic and environmental background as those

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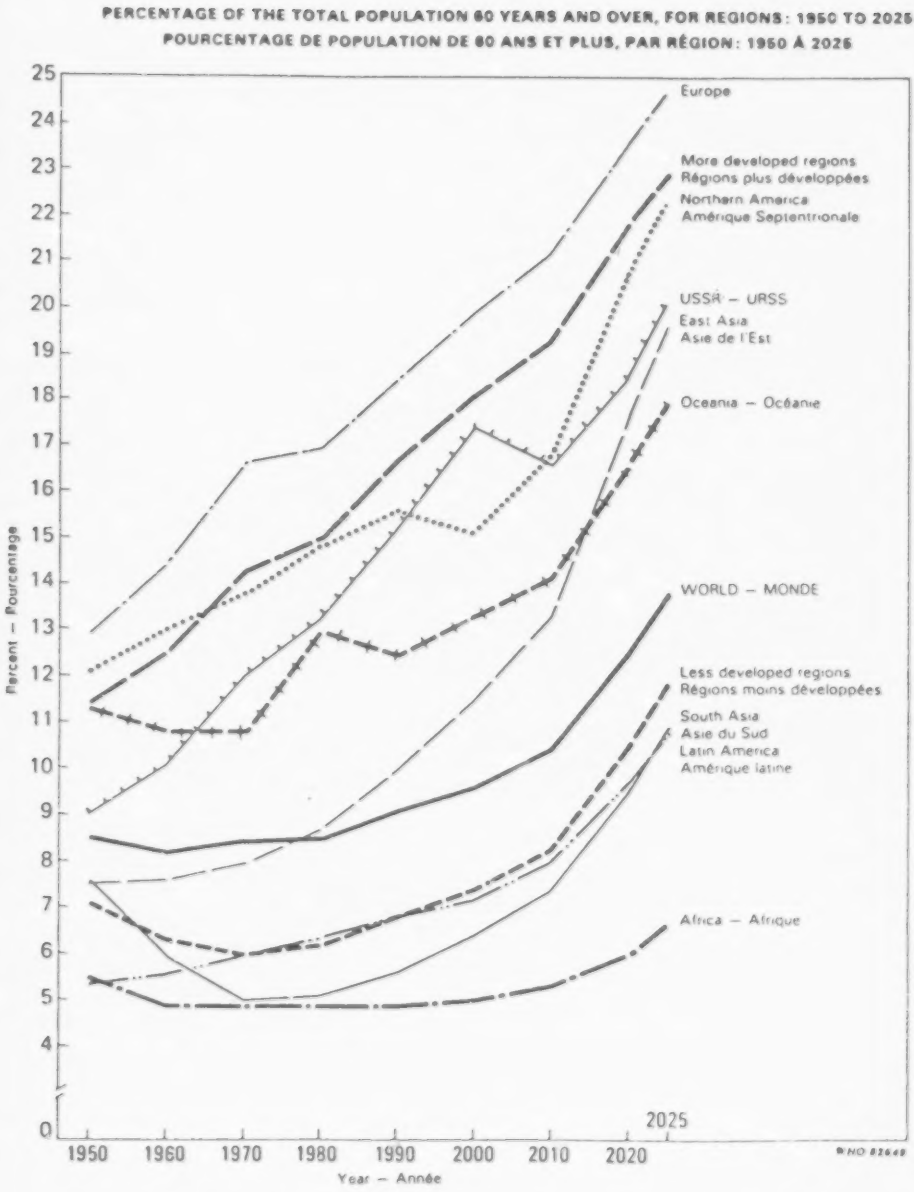
kept in large centres, there is a need to maintain common inbred strains in at least 2 international locations.

The conservation and distribution to investigators of tissue, cells and sera, adequately preserved and stored, is an esential pre-requisite for many of the proposed studies. The lack of this facility has been a major impediment to aging research. Thus, banks of biological materials need to be established within existing facilities.

In conclusion, an international programme is being proposed to bring together scientists from different countries and different areas of competence and orientation. The effect of this programme will not only be to pave the way for new approaches in preventive medicine and geriatrics, but will also disseminate research and medical capacity and technical know-how in developing countries, where problems of health in the elderly may soon become even more acute than in developed countries.

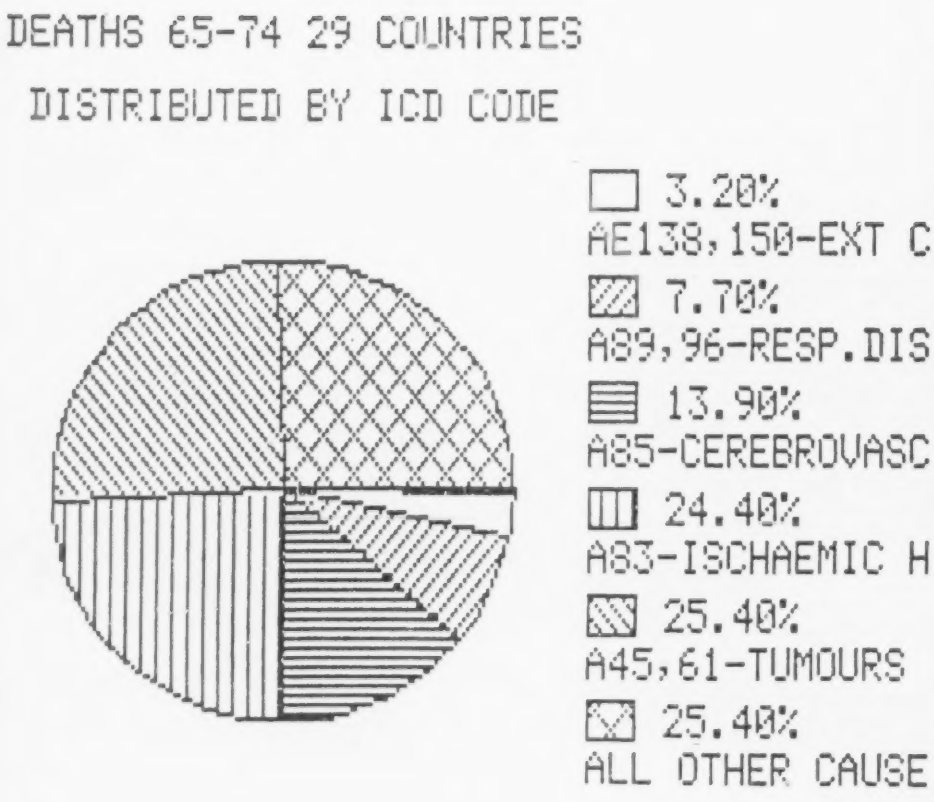
Funds to support this programme would be solicited from governmental agencies, private institutions, and foundations.

FIGURE 1



Source: World Health Statistics Quarterly, Vol.35, 3/4 1982, p.196

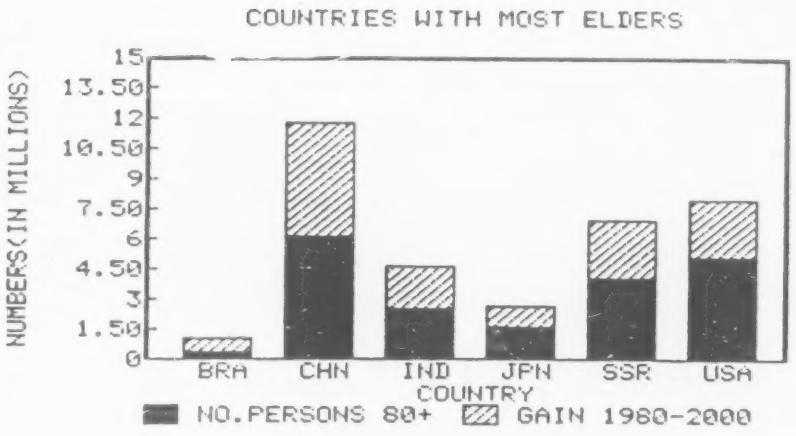
FIGURE 2



Source: World Health Statistics Quarterly, Vol. 35, 3/4 1982, p. 220

FIGURE 3

Growth of the very old population



Source: Health Policy Aspects of Aging: Report of World Health Organization, United Nations, 1982, A/Conf. 113/19 p.30

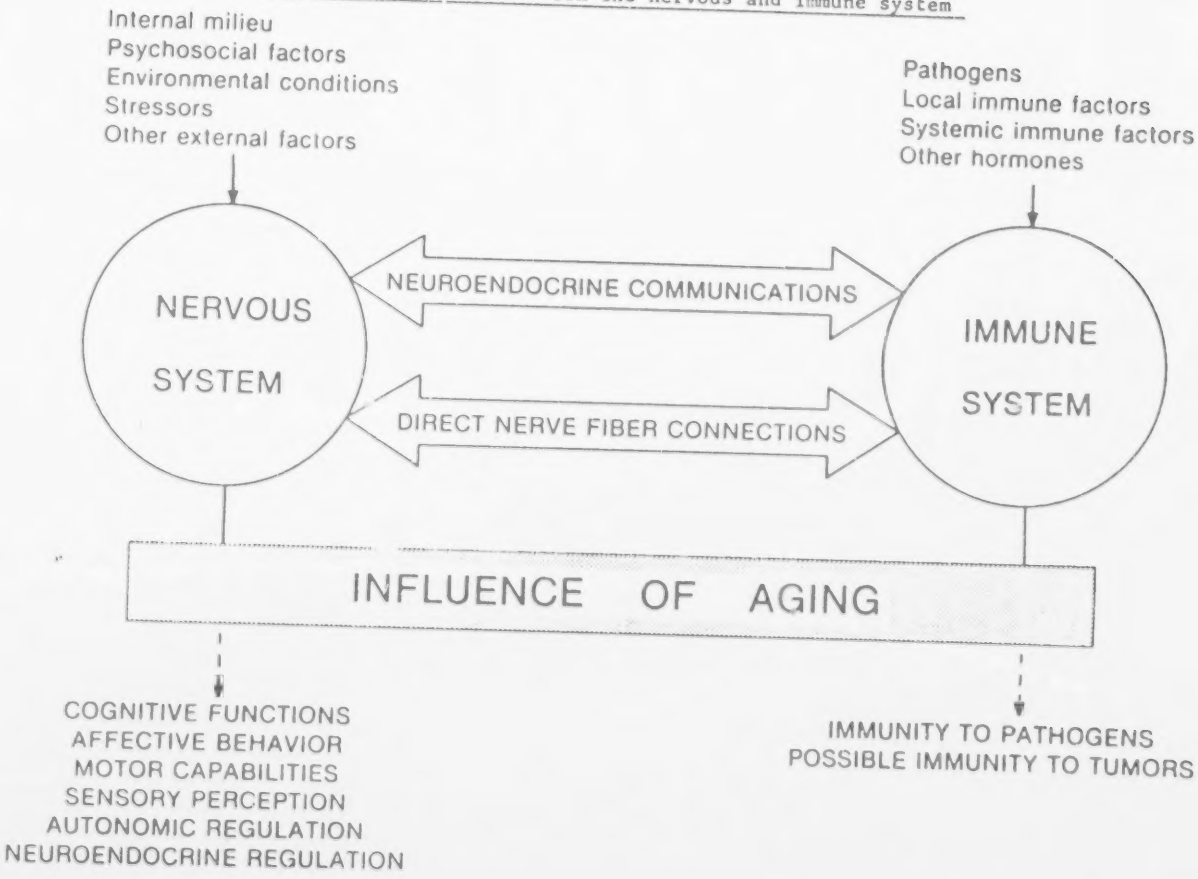
ANNEX 1

Changes in the immune system with advancing age

1. No change in numbers of peripheral blood lymphocytes
2. Decreased T-cell DNA synthesis in response to mitogenic stimulation
3. Decreased helper T-cell activity
4. Decreased levels of specific antibody such as anti-tetanus toxoid
5. Increased diversity and number of "autoimmune" antibodies
6. No change in numbers of peripheral blood B cells
7. Increased incidence of homogeneous monoclonal immunoproteins
8. Decreased heterogeneity of the antibody response and decreased activity of the antibody molecules produced
9. No change in NK cell function
10. Increased production of anti-idiotype antibodies
11. Decreased numbers of circulating suppressor T-cells
12. Increased numbers of autorosette-forming cells
13. No clinically significant change in serum immunoglobulin levels
14. Enhanced cellular sensitivity to prostaglandin E_2
15. Diminished intracellular synthesis of mediators such as interleukin 2 (IL-2. formerly T-cell growth factor, or TCGF)
16. Diminished in vitro delayed hypersensitivity

ANNEX 2

Two-way communication between the nervous and immune system



STATEMENT OF PROF. NANA APT, UNIVERSITY OF GHANA, LEGON, ACCRA, GHANA

Professor APT. Thank you very much, Dr. Macfadyen.

I would like to, first of all, thank Senator Glenn for inviting me to participate in this hearing and to the organizers, I would like to commend them for including the concerns of developing countries in this hearing.

I am addressing myself to the changing family patterns and the impact on aging in Africa. But before I start, I would like to point out a few errors in my paper, which I think you all have. There are many typographical errors, but the most serious, which I think you should correct, is the dating of the World Assembly on Aging in Vienna, which my paper stated was in 1985, but it should be 1982. Thank you.

I will start with the discussion of the traditional and social cultural attitudes toward the elderly in Africa. The type of religious philosophy and the cultural values in most of the African societies embodied a lot of respect and integration of the elderly within the family. The extended family, which we have all heard so much about, was a system that was very much intact and operational. It was a major cultural influence in ensuring uninterrupted and satisfactory recognition, respect, care and services for the elderly members of the family.

To sum up the traditional concepts of the role and place of the elderly in African societies, I would say that the family assumed the responsibility for all the services of its members, whether social or economic. Traditional families in most countries of Africa are, as I have said before, the extended type, made up mostly of blood relations which are often far removed. Interpersonal relationships within the family are very strong, and members of the family are very closely knit. The extended family system, thus, constitutes a social security system whereby the young, the widowed, the old, and the infirmed are all taken care of. Thus, the traditional family is a real self sufficient unit.

There have been many changes, as you all know, since the time of colonialization until now in Africa. In fact, we can say with some justification that since that era when African countries lived in voluntary solitude, closed on its own self from all other countries many changes have occurred. Through colonialization they were forced to interact with other nations stronger and bigger than themselves and since that time there have been several important outcomes which have developed as a result of the experience with outsiders. I will sum up some of the changes as follows:

African countries, after the colonial era, generally moved from subsistence economy to cash economy. They moved from nomadic life to village and urban life; from communal ownership to family and individual ownership; from agricultural economy to mining and manufacturing economy; and from tribal rule to nationhood and now Pan-Africanism. All these changes are taking place in time. If we take, for example, my own country, Ghana, you can see that since the beginning of the 20th century we have come on the impact of a whole series of worldwide processes which have rocked the culture of many of the indigenous groups to their very roots.

The very first impactful process was religion and then education. Formal education which is now a very highly priced symbol in my country, as well as in many countries of Africa, began during the early 19th century and by the middle of the 19 century in my country you could find that many hamlets boasted of at least an elementary school. Christianity and Islam have also emerged as the religions of Africa since the conquest period. Christianity more than Islam set to destroy the vestiges of traditional beliefs with their ancestral worship, taboos, and sanctions against detractors. In particular, the ancestral cult was attacked, thus weakening clan solidarity and clan ties.

There is also, when you are examining Christianity, a strong leaning bias toward father, mother, child nuclear relationship and the values of parental control as against the greater lineage. There is, moreover, the factor of strong patrilineal as against matrilineal bias in Christianity, which you find also in the Islam religion.

When you look at the many changes which have moved many of the African countries toward what we call modernization, it can be said that one of the most important factors which needs to be discussed, and which in fact a lot has been written about—and I don't need to belabor the writings here—is education. Education has been the main vehicle which has facilitated the incursion of other major development processes. Formal education, for example, has widened the communicational gap between the sectors of the population, old and young, as well as opening the gates for modernization, industrialization, urbanization, and migration.

When you talk of a modern family in Africa, you talk of a nuclear-type of family of which the father, if not both parents has had a very good education. The modern African family lives and works in an urban area using the head and not the hands in working and possibly living very far away from the extended family. This is the modern family in Africa today.

As I have said, education has brought about the most upheaval in African societies today, because with that many other trends in modernism have emerged.

In many countries of black Africa today you can say that through education, through new jobs, and so on you find many people with some background in education now moving from the rural areas in search of jobs in the urban areas. What has happened is that modern education provides the licence for not soiling the hands so even in the rural areas the perspective of the schools is to move to the town where they can find white collar jobs. This is pushing a whole lot of able bodied youth who have some sort of education away from the farms into the cities. In many African countries there are now a whole lot of political slogans to get the youth "back to the land." Nevertheless, when you think of it, the existence and demand for labor force in urban areas, and the relative economic depression in rural areas in Africa, naturally create a tendency for young people who have hope of doing better for themselves, to move into urbanized centres.

Most of the urban growth is a result from migration of the people from rural areas. The form of migration, the distances over which people are migrating, the characteristics of the people who migrate to the cities are changing over time, but one of the things

that is really certain is that migration creates gaps in the remaining family structure and reduces the volume and intensity of interaction for which distance can be a deterrant.

The forces of migration and also urbanization usually affect the social and psychological state of the migrant. You move from the rural area away from the greater family. You live in the town or city. You make new friends. You mind your own business. You make your own money. You find somebody else who is not of your clan and marry a new person altogether. You form a family. Sometimes even the marriages take place before the greater family gets to know. And so you acquire habits, customs, values which are completely different from your roots, this is what used to be, and you find that living in the city or in town you do not have the greater family around you to guide and streamline your activities. So, just as you find over here also, you are alone and you have to adapt yourself the best way you can in the town or in the city to make a new life.

Another modern factor is industrialization. What has it done in terms of lowering the prestige of elderly people? Industrialization in Africa has made now the skills of the elderly people obsolete. In the past people got by with traditional knowledge of the arts and crafts. But now, even though trading of local crafts is still a very predominant feature in African villages and towns, we have now new techniques which are gradually surplanting the older methods of production and thus lowering the prestige of the traditional skilled elderly people.

All these modern forces have together contributed to the separation of the youth from the elderly in Africa today. There are now signs of changes. Nuclear families are getting more and more and living away from the greater family, due to increased physical and social mobility.

When I look at what is happening today, I find the statements of the African delegation to the World Assembly on Aging summing up the future of Africa regarding the elderly within the family. And I would like to just quote a few of the delegates 'statements in Vienna in 1982:

Kenya's report, for example, states that the shift from an agrarian economy, which by its very production activities maintained the cohesion and stability of the family, to plantations, mines, and factories, is now causing physical separation of family members often by great distances, thus weakening the traditional family ties. Again, it states, the concentration of industry trade and educational opportunities in cities spurs the migration of young people from their villages.

Malawi states: The division of labor with its increasing specialization puts emphasis on the individual rather than the community.

The People's Republic of the Congo: A new type of social relations has emerged resting on the search for profit, competition, and in the valuation of a certain form of activity, salaried activity.

Cameroon and Tanzania have the same idea. They state that modern education and the mass media have contributed to the dissolution of the extended family system.

Zaire: The rural exodus is causing a void through the elimination of the active population who could have been able to provide for the essential needs of the aging populations.

Botswana: The situation of the elderly left on their own in villages is worsening by periodic droughts which makes subsistence farming even more difficult.

Ethiopia: The living conditions and industrial occupations provided for younger persons are not conducive for them to care for all their elderly relatives.

Mali: Such trends are multiplying cases in which young people preoccupied by the absorbing daily problems of modern life fail to fulfill their duties towards the old.

Ladies and gentlemen, I would like to conclude by stressing that aging really is not a problem in African societies today because the majority of people are living in rural areas where comparatively, the traditional concepts of living still exist and go on. But as we have heard this morning, from the demographic statistics, I assure you that in the nearest future the aging population will be increasing more in the developing countries, including Africa. What is happening in our countries is that even though we do not have a problem, the beginnings of a problem are surfacing. If we don't do anything about them now, the problems will get more and more. Therefore, unless African governments are ready to sit down now and, as a colleague mentioned earlier, do some research to determine the extent of the problem, then look at the West, see what they have done, right and wrong in responding to the needs of their elderly and learn from their experience, and take specific action with regards to our own problems, then it will be too late when by the year 2000 the numbers of population of the elderly have increased and maybe the problems have also increased to a point where we cannot do much about them.

Thank you.

[The prepared statement of Prof. Nana Apt follows:]

PREPARED STATEMENT OF PROF. NANA APT ON CHANGING FAMILY PATTERNS AND THE IMPACT ON AGING IN AFRICA

INTRODUCTION

The object of this paper is to discuss changing family patterns in Africa and the impact of these changes on the status role and well being with special reference to Ghana, of the elderly. The focus then will be on the dynamics of the changes sweeping through the whole African continent since the colonial era and the variables which affect both status, role and cultural attitudes towards the elderly and their social, political and economic participation in the world around them.

The first part of this paper gives a brief discourse on the traditional concepts of the place and role of the elderly within the African family. The second part discusses some of the factors which have brought about social changes in Africa within the past quarter of the century as well as the impact of the changes on the structure of the extended family system which has been the mainstay for the welfare of the elderly.

Traditional social and cultural attitudes

The status, position and role of elderly people in any society tends to be influenced by many institutionalised factors. These factors may include the elderly's command over knowledge and skills, their independence manifested in their ownership of property, their degree of control over the affairs of the young and the presence of strong religious traditions binding kinship ties and extended family patterns.

In traditional times, the "family" in Africa was considered to be the temple where living relations were to adore the ancestors, even to the extent that in Ghana for example, some very important relatives were buried in the very same house and room they had been living during their life. An endless chain of responsibilities were to be performed to pacify and show veneration of the ancestors, elders and parents in well established terms to create the impression that the deceased were still part of the living.

Among the Akan speaking peoples of Ghana for example, there is this religious philosophy of eternal cycle of life, ranging from the unborn through the living to the dead. Just as the unborn are expected to yield ground to the living, so too must the living hold the dead in awe and respect at the same time. The dead are visualised as the ancestors who are thought to be on the other side of the earth, unseen, but real to life. The aged are deemed to be closer in bondage to the ancestors and therefore they alone perform ceremonies invoking their presence at family gatherings. Thus all the sectors of humanity that is, the unborn, the living and the dead are held to be one indivisible. Besides, the dead or the ancestors are to be placated through respect and care for their manifested needs to be in good terms with the living and the unborn.

This type of philosophy for example which underline the religious doctrines of many people of Africa, provides for some inbuilt arrangements for guaranteeing care for and services to the elderly in the traditional African society. Under these circumstances, economic support and social welfare facilities were provided for the elderly as part of the normal structure of the traditional society. The extended family system was very much intact and operational. It was a major cultural influence in ensuring uninterrupted and satisfactory recognition, respect, care and services for the elder members of the family.

Our family pattern of old was equivalent to the modern social security scheme, caring for the elderly as an accepted responsibility of the whole greater family. Thus, our elders never felt lonely or desolate or unwanted. Material needs though important, were however natural share of goods and essentials due to the elderly first, to the extent that certain parts of game and seasonal foods caught and gathered went to the elderly first.

The elderly in Ghana formed and integral part of the family unit holding definite and high ranking positions. They were the experienced men and women of wisdom whose expertise and advice the young early sought. Their life long experience and roots in folklore, tradition and culture accorded them the esteemed position of officiates at traditional ceremonies to do with birth, marriage, death. In the council of the family the clan, the elders word and presence was the rule. They sanctioned decisions and enterprises of the younger. The elders were the authority for all and everything. Sure enough, there were clashes, disagreements, friction and controversies and interest and all the problems surrounding human relationship, but one thing was common to all of them—recognition of the family pattern.

One more example may be used to illustrate the privileged position of the elderly in the transitional family, as well as in the society generally. Mainly for the purposes of training, the younger members of the family were usually made to live and stay with the elderly. This form of attachment provide for the elderly, a reliable source of assistance in performing domestic as well as other duties. As the younger members graduate into adulthood, they become independent and serve themselves. However, they are still under a form of social obligation to pass on a proportion of their outputs to the elders to whom they were previously attached in the understanding that later in life others younger than themselves will reciprocate the offers being made.

Summing up the traditional concepts of the role and place of the elderly in African societies, it can be concluded that during the traditional stage, the family assumed the responsibility for all services for its members whether social or economic. Traditional families in most countries of Africa are of the extended type made up mostly of blood relations often far removed. Interpersonal relationship within the family are very strong and members of the family are closely knit. The extended family system thus constitutes a social security scheme whereby the young, widowed, the old and the infirm are all taken care of. The traditional family in short, is a self sufficient unit.

Social change and consequences

We can say with some justification that African communities which lived for centuries in voluntary solitude, closed on its own self, were forced through colonization during the last two centuries to live with the world and interact daily with much stronger nations and much more sophisticated industrial cultures.

Several important outcomes developed as a result of the experience and Africa started to move from: subsistence economy to cash economy; nomadic life to village and urban life; communal ownership to family and individual ownership; agricultural economy to mining and manufacturing economy; and tribalism to nationhood and Pan-Africanism.

Let us take as an example my own country Ghana. Like most countries of Africa Ghana has since the beginning of the twentieth century, come under the impact of a series of world-wide processes which have rocked the culture of the many indigenous groups to their very roots. The first impactful process was religion and then formal education which is now a highly priced status symbol. To begin with Christianity and Islam have emerged as the religions of Africa since the conquest period. Christianity more than Islam set to destroy vestiges of traditional beliefs with their ancestral worship, taboos and sanctions against detractors. In particular ancestral cult was attacked thus weakening clan ties as the ancestral spirit provided the sanction for clan solidarity. There is also in Christianity a strong leaning bias towards the father mother child (nuclear) relationship and the values of parental control as against the greater lineage. There is moreover the factor of strong patrilineal as against traditional matrilineal bias present in the Christianity and Islam religions.

The schools which were founded by the early missionaries in Ghana during the later decades of the nineteenth century were already spreading in the early twentieth century until by the middle of that century, every settlement was able to boast of at least one primary school while the towns became the centers of secondary schools. The rank of illiteracy was confined only to the adults and the elderly. There was therefore by the middle of the nineteenth century, a noticeable educational gap between the younger segment of the population on the one hand and the adult and elderly segments on the other hand.

Suffice it to say that for all practical purposes the two marked sectors of the populations referred to above, belong to different non-convergent cultures: the young to the westernised or the urban modern system and the elderly to the traditional culture which at its most dynamic form is transitional. The manifestations of the two separate groups are too numerous to list. However, within the context of this paper, it may be specified rather briefly that while the elderly still cherish the attitude of respect and reverence for those older than themselves, the young tend to treat anyone else in terms of their educational status and those who command obedience and loyalty of the youth are teachers, professionals and employers rather than adults or elderly people who are educationally below them.

Much has been written about the upshots of education in Africa, so that this paper need not elaborate them in detail here. What is of relevance however, is the fact that education has been the main vehicle which has facilitated the incursion of other major development processes. Formal education for example widened the communicational gap between the sectors of the population as previously indicted as well as open the gates for modernization, industralization, urbanization and migration.

Perhaps, one single factor that can be said to have brought about the most upheaval within the traditional family system and African culture at large is moderization. Even though as compared to western industralised societies, family relationships in Africa remain stronger, the role of the larger family in the provision of welfare services is somewhat diminishing. In no other way has the dynamic transition of the social aspects of life become as graphic as in family structure and patterns. The family structure has become increasingly nuclear rather than extended. Especially in the urban areas, it is the nuclear rather than the extended that is more common. Almost everywhere in Africa, the marriage pattern has become more foot-lose than ever before. The anchor which was found in being married to one another's family has become less firm as individuals become now married to each other.

In general the undermining of the marriage structure and pattern have in turn contributed to the destabilization of the values which in traditional times sustained the adults and elderly in a closely knit age-intergrated society. Modernization has produced some paradoxes and most characteristics of these paradoxes are value conflicts, that is conflicts between moderm values and values espoused by the traditional African societies. It is against this background of conflict in values that the elderly generations existence in Africa become irrefutably obsolescent.

In many countries of black Africa today, migration of youth to the cities and urban centres is being viewed with consternation and alarm. Slogans to get the youth "back to the land" abound in various forms. Nevertheless, the existence of demands for labour force in urban areas and the relative economic depression of rural areas in Africa create the tendency for young "hopefuls" to make the move to

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the urban centres. One of the most interesting aspects of urbanization central to all countires of Africa, is the hope and aspiration for a better life, as the youth join the stream of population toward the new life of "urbanism".

Most of the urban growth is a result of migration from the rural areas. The form of migration, the distances over which people migrate, and the characteristics of those migrating have been changing over time but one feature remains certain, that is, migration causes separation of family members, create gaps in the remaining family structure and reduce the volume and intensity of interactions for which distance can be a deterrant (Adeokun, 1983).

The forces of urbanization usually affect the social and psychological state of the migrants, the major impact being a change in patterns of family life. The individual must of necessity select new companions, friends as well as new habits and ideas. He must adapt himself to a new kind of interdependence with community institutions and organized services and in the adjustment to the structural as well as cultural forces, a lot is lost that is of the old rural tradition. In urbanization therefore we have a concept which arguably comprehends what is mainly involved in African contremporary movement in change. Moreover migration is gradually turning the villages of Africa into settlements for the old and the very young.

As the ablebodied young adults with some education leave to the urban centres in search of jobs, the remaining elders have no help in farming or in housekeeping. As a direct result the yield of crops for the normal upkeep decreases and gradually in very great quantities, food stuff has to be imported even to the rural areas.

Industrialization in Africa has made the skills of the elderly obsolete, further lowering their status and increasing the regard for the educated and the technically skilled. Petty trading and local crafts though still a predominant feature of African villages and towns, new techniques are gradually supplanting the older methods of production. The concomitant growth of towns and of commerce as well as industry has increased the use of money and has made its possession essential and thus increased the esteem for people who are salaried or wage earners. This group living in towns and cities are less dependent on their lineage financially and often resent the request they receive from their kinsmen for financial assistence.

CONCLUSION

Signs of change

From the forgoing it is obvious that the elederly in Africa are now caught in a family situation which is in rapid transition. Only some few years back many countries of this continent had to swiftly change from bartering to modern monetary system of economy. Within a short span of time technologies have been introduced with the most advanced processes in mechanization and industry with the result that in large parts of this continent, the barely literate population is finding it difficult to adjust to the new situation.

Increase physical and social mobility are shifting the African from the traditional patterns of family and clan settings and new factors of social stratification based on new forms of political leadership, modern skills, education, occupation and income have taken precedence over traditional ones. All these have devastating effect on the elderly as perceived from the statements of African delegates to the 1985 United Nations World Assembly on Aging held in Vienna:

"The shift from an agrarian economy which by its very production activities maintained the cohesion and stability of the family, to planations, mines and factories is now causing physical separation of family members often by great distances thus weakening the traditional family ties . . . the concentration of industry trade and educational opportunities in cities spurs the migration of young people from their villages." (Kenya).

"The division of labour with its increasing specialiation puts emphasis on the individual rather than the community." (Malawi).

"A new type of social relations has emerged resting on the search for profit, competition and in the valuation of a certain form of activity, salaried activity." (Peoples Republic of the Congo).

"Modern education and the mass media have contributed to the dissolution of the extended family system." (Tanzania and Cameroon).

"The rural exodus is causing a void through the elimination of the active population who could have been able to provide for the essential needs of the aging populations." (Zaïre).

"The situation of the elderly left on their own in villages is worsening by periodic droughts which make subsistence farming even more difficult." (Botswana).

"The living conditions and industrial occupations provided for younger persons are not conducive for them to care for all their elderly relatives." (Ethiopia).

"Such trends are multiplying cases in which young people pre-occupied by the absorbing daily problems of modern life fail to fulfill their duties towards the old." (Mali).

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Dr. MACFADYEN. Thank you very much, Dr. Apt.

Our next speaker is Dr. Ma. I would like to explain that Dr. Ma and I have the same name because when I went to the People's Republic of China, they found my name much too complicated so they they just called me Dr. Ma.

Dr. Ma Haide is from the People's Republic of China and he is no stranger to the United States. He attended medical school at the American University at Beirut, Lebanon, and in Switzerland. In order to prepare for a public health career in the Southern United States, he decided to gain some practical experience by spending 1 year in China in 1933. That 1 year turned out to be 50 years. Dr. Ma found his vocation in life to be working with the people of China. Leprosy, occupational diseases and preventative medicine has been the focus of his efforts and, after 50 years of service, Dr. Ma continues to work with the Ministry of Public Health toward realizing the goal of eradicating leprosy in China by the year 2000.

We are honored to have Dr. Ma with us today to share his thoughts with us on public health in China and aging.

Dr. Ma.

STATEMENT OF DR. MA HAIDE, SENIOR ADVISOR, MINISTRY OF PUBLIC HEALTH, PEOPLE'S REPUBLIC OF CHINA

Dr. MA HAIDE. Chairman, Senator Glenn, honorable panel, and distinguished audience, it is a privilege to be standing here bringing some ideas about aging as it occurs in China, and sitting in the audience, even for a short period, I realized that Senator Glenn has really chosen the problem of the future, "The Graying of Nations." I never realized that China, whose average age of longevity in 1949 was 35 years old, would soon be troubled with the problem of becoming a graying nation.

One of the basic facts that you have to keep in mind when you speak of China is a very simple one, it has 1 billion people. And I am horrified by the fact that Sweden's overpopulation can reach 15 or 18 percent. China today has 100 million people above the age of 60, all in the period of 35 years. So I feel privileged in learning of

the seriousness of this problem as it is manifested in many other nations, and what is being done about it. I also realize that every nation has to do what it can in terms of its own social, economic, cultural, financial and educational levels. They have to base their activities of solving the graying problem according to their means.

I was thinking the audience would expect, perhaps, some pieces of oriental wisdom brought from the East, and not to disappoint the audience, I give you a few nuggets of real ancient wisdom. The collection of our ancient wisdom started and was recorded on oracle bones, tortoise shells, and bamboo slips; that would be 3,500 years ago. And this wisdom and knowledge has filtered down to the present because there is in China a very strong continuity of history and a sense of continuity in its history and cultural patterns. It is one of the biggest world entities that has a homogeneous population throughout 20 to 30 centuries. The wisdom of the oracle bones, as it is modernized in the present concept, consists of six canons or rules of how to grow gray. It doesn't say gracefully; it doesn't say peacefully; it doesn't say anything else. It just gives you a few pieces of advice, and fortunately they sound very universal.

The first piece of wisdom, as it was recorded in the spring and autumn annals of 2,600 years ago was that good health was found in emotion. And the analogy is explained in this way: Running water doesn't become stale and the wooden door-hinge never gets worm-eaten. I know we have overcome this worm-eaten part, we use nonstainless or stainless steel for hinges, but it is the same idea. Exercize, the first canon.

The second wisdom that traditional scholars leave for us and that we are taking into consideration, combines a sense of deep breathing and meditation. And I have discovered in my few days in New York, it is dangerous to do both. [Laughter.]

However, we claim that such exercises can prevent poor vision. It helps prevent loss of hearing or circulatory insufficiencies. Memory may be enhanced if you are not poisoned in advance. And better tolerance is achieved for cold and heat. Deep breathing we refer to as Qi Gong, and it is practiced by millions in the People's Republic of China. They have the sense in the cities to go to the park areas to indulge in such practices early in the morning.

The third point is good health comes from nutrition. That sounds very mundane, we eat a lot. But the ancient text mentioned above recommends that ingestion of food be both quantitatively and qualitatively controlled. Everyone knows excessive food and drink is not good for you and ailments in the elderly are first treated by dietary methods. I had a whole series of slides of a hospital menu in a Chinese traditional hospital, but I felt this audience was a little too sophisticated to show them to. Only after the dietary efforts have failed—and in the dietary efforts there are many preventive ideas encompassed, such as white fungus, used for improving vision—are various other herbal remedies used. And these are being tried and put into effect in traditional hospitals, traditional medical hospitals, and if I showed you the slides I think we would have an overcrowding of our hospital population, the menu looks very good.

The fourth piece of wisdom relates to a cultivation of your internal character and control to promote good health. I will have to

read this part. This principle is explained that too much joy injures the heart; violent anger hurts the liver; thinking too much hurts the spleen; sadness hurts the lung; fear and horror hurts the kidney; violent fury—like arguing with your wife or your husband—damages the "YIN" the negative principle in nature. From this concept of YIN and YANG it follows that both happiness and anger should be controlled. And this is what they mean by a cultivation of an inner controlled process.

The fifth principle is that senior citizens are called on to adjust to natural conditions and seasonal changes, both by clothing, food, habits, exercise, and so forth. You have to take in the concept of the seasons and the changes.

And the sixth is that for good health one must maintain a strong and healthy kidney. No laugh from the audience? Well, a popular phrasing of this idea is seen in the statement, "Never marry a beautiful wife or an overstrong husband," if you want to live long. There is great stress in traditional medicine relating to the problem of maintaining proper sexual activities for the aged.

These six canons of advice for the elderly have been handed down through the centuries and they are still being used, taken into consideration more and more as our population is growing older, and they have enough to eat to follow the nutritional advice given by these ancient texts.

Returning to the present times, I want to look at just a little bit about what time is doing for aging. They have in the Ministry of Health, which is under the Government council, a department for the elderly, but above this there is a national commission on aging that belongs to the Government council and this directs the work for aging throughout the whole country. We have the Ministry of Health involved and the Ministry of Civil Affairs, which are more directly responsible for old age and old-age care. We have a geriatric medical association. We have twice as many departments of gerentology and geriatrics in China as does the United States. I understand there is one in the United States; we have two. I have roughly figured out that if we are going to set up chairs for professors of geriatrics, we would probably have to import more than 300 chairs. And that is only for a start. And we do have institutions for studies and research. We have modern approaches to basic research that are found in other countries. And we put a greater emphasis on epidemiological—you call them sociological—studies among the aged.

Now, I want to trace a few steps, to mention how we got old in China. When I first came to China, people were selling babies on the street. In wintertime, they were picking up dead bodies. There were wars in the various provinces and there was pestulences, poverty, misery. In some of the areas I worked with and in had an infant mortality of anywhere from 300 to 500 per 1,000 live births. We have changed all of that. We have reduced the general mortality by a very widespread primary healthcare system. Our natural growth was running away with us. We were getting 2½ to 3 percent growth, which would give us a terrific percentage in terms of absolute numbers, and we promoted health care and education.

At present, people live to the age of 68, the average age. China ranks among the 10 top nations in health in this respect. And, of course, like all other countries, in our elderly population we have

more females than males. And as our French colleague commented, "Vive la diference."

Now, with all this explosion of a graying population we are faced with a number of problems, and basically our problems are that the economic basis on which we had to help the elderly are very frail as compared to what is needed. And so we depend heavily and try to preserve the extended family to keep our elderly population cared for by a very good care in the family. The tradition of having five generations or three generations now under one roof is regarded as an honorable status in society, and the children take care of their parents not as a duty, but it is the right of the elderly to receive this care because of the cultural patterns that have been established.

Now I see my time is running out which always happens to me. I would like to mention, in addition to what I have on the record there, a few thoughts. I would like to thank Senator Glenn for bringing to the attention of the world with a very apt statement, "The Graying of Nations," "The Graying of Nations I," and this is the "Graying of Nations II;" and I want to insist on one thing, that all nations should have the right to gray healthfully, peacefully, and enjoy the fruits of their contributions by the elderly to society. This is a reward. It should be looked on as a reward for their past contribution because they are, in spite of modernization, they are the repository of knowledge and wisdom, at least that's the way we look at it in China, and we recognize that it is not only in the computer that you could preserve this knowledge and wisdom.

Senator Glenn has helped to bring attention to the problem of graying. He also helped to bring and promote the idea of nonproliferation and the nonproliferation treaty, and I hope he will go on to continue his global approach to keep our nations gray and not have them vaporized by nuclear war and eliminate the problem of old age or any age.

Thank you.

[The prepared statement of Dr. Ma Haide follows:]

PREPARED STATEMENT OF DR. MA HAIDE

THOUGHTS ON AGING IN CHINA

Senator Glenn, chairman and honored guests: I feel privileged to bring to your attention something about the role of old persons and aging in the People's Republic of China from the viewpoint of public health. First, permit me to point out one salient fact on which all the rest of my presentation depends on. China has one thousand million people and when we talk about graying or ageing in China, we must keep this figure in mind and realise that in China today there are approximately one hundred million senior citizens citizens over the age of 60. Every effort to approach this problem has to consider the individual, the role of family, the role of society, the social, cultural and historical values and the medical health services of the Government of the People's Republic of China. The approach that new China has taken includes its responsibility to its citizens from the cradle to the grave. As China becomes more affluent, the quality of such care becomes better and better.

Historically, China has always paid attention to its aged people. This depended on the degree of individual affluence. In old China prior to liberation the situation of the aged varied. Emperors of the imperial dynasties for example prepared for their own old age and death by building their monumental tombs as soon as they ascended the throne. Many people are familiar with the great tombs of Qin Shi Huang in Xian, Shenxi Province and the beautiful areas near Beijing where the Ming emperors built their own tombs, 13 of them, which are some of the world's famous tourist attractions of today. Less affluent people such as larger government officials or

owners of landed states usually bought lacquer coffins made of special Nanmu wood which they would place in the hall of honour and have them relacquered and varnished at least once a year. Sometimes as many as 40-60 coats of varnish were applied. The poorer individuals could not do much about their old age and hoped for a decent burial.

Today, the elderly in China expect a more active role in their old age. For them, there is the role of the honored older in the extended family where he or she has a respected position of responsibility and influence over the family members who, in turn, pay respect to them as being the keepers of wisdom and knowledge. They receive both respect and support.

Because of its thousands of years of ancient culture and tradition, China has paid varying degrees of attention to the health care of the age. The earliest records related to health care of the aged are found in the inscriptions of oracle bones and tortoise shells of the Shang Dynasty (16th-11th Century B.C.). Among the 10,000 volumes of books on traditional Chinese medicine, there are 200 monographs related to the health care of the aged. Naturally, there are many varying ideas and teachings on how to keep good health in old age. This traditional knowledge may be summarised as follows:

1. Good health is found in motion. The Spring and Autumn Annals (770-476 B.C.) explain this by an analogy: running water doesn't become stale and the wooden door-hinge never get worm-eaten. This idea of motion (exercise), according to these Annals, applies to human health care of the old. Shadow Boxing (Tai Ji Quan) or walking or relaxed strolling is recommended. Specifically, walking one thousand steps even inside a courtyard or room before going to bed may provide for health and induces a quicker and deeper sleep.

2. Traditional medical scholars recommend a series of exercises which combine deep breathing with a form of meditation. These exercises are called "Qi Gong and are used to prevent illness and/or combat illness once it is manifest. It is claimed that such exercises can prevent poor vision, loss of hearing or circulatory insufficiency. In addition, it is said that memory can be enhanced and better tolerance to heat and cold can result. A half hour of exercise two or three times per day is recommended for old people. Qi Gong therapy relies on several forms of behavioral intervention, including relaxation training and biofeedback. It is practiced by tens of millions of Chinese. Modern behavioral medicine has much in common with the ancient, Chinese Qi Gong (breathing) exercises.

3. Good health from proper nutrition. Ancient wisdom in the texts mentioned above recommend that the ingestion of food be both quantitatively and qualitatively controlled. Excessive food or drink is contraindicated. Ailments in the elderly are first treated by dietary methods and only afterwards are tonics and drugs used. The use of tonics in traditional medicine has been noted among the records of the imperial medical practitioners. Studies carried out by the Chinese Academy of Medical Sciences' Gerontology Institute have proved that the herbal drug Ginseng and Astragalus membranaceus can delay the natural course of ageing of different cells in the body. The modern use of Vitamins A, B-complex and Vitamin C in combination have been shown to achieve the same results according to experiments in the famous Beijing Hospital.[1]

4. Cultivation of internal character control promotes good health. This principle is explained as follows: too much joy is said to injure the heart, violent anger hurts the liver, thinking too much hurts the spleen, sadness hurts the lung, fear and horror hurts the kidney, violent fury damages (YIN)—the negative principle in nature and excess hilarity damages (YANG)—the positive principle in nature. From this YIN-YANG concept, it follows that both happiness and anger should be controlled, especially in old people who should practice the discipline of being neither too happy or too sorrowful, too despondent or too optimistic. A major part of life in the elderly should be occupied with the culture of enjoying nature, flowers, painting, music, pets, such as birds or goldfish and other similar pursuits.

5. For good health the senior citizen is called on to adjust to natural conditions and seasonal changes. One should adapt to the variable changes of seasons in clothing and food—for example, by wearing proper clothing and performing activities suitable to the season.

6. For good health one must maintain a strong and healthy "Kidney". In traditional Chinese medicine, the term "Kidney" refers to more than the anatomical organs in the lower back. A health "Kidney" means both a harmony (that is a hor-

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[1] He Huide, et al: The Advancement of Gerontology in China in Recent Years, Chinese Year Book of Medical Sciences, p. 450, 1984.⅓

monal balance) and a discipline relating to sexual activities. The principle expounded is moderation is this respect, especially in aged persons. A popular phrasing of this idea is seen in the statement "never marry a beautiful wife or an over strong husband". There is great stress in traditional medicine relating to the problem of maintaining health "Kidneys", meaning proper sexual activities for the aged.

The above six cannons of advice for the elderly have been handed down through the centuries and have a modern ring to them.

Returning to present times, the Chinese People's Government after 1949 gradually established a central department in the Public Health Ministry which is concerned with the health and care of senior citizens, and others such as the disabled, orphans etc. The Ministry of Public Health has urged various elements of society to become involved in the care of the aged people. By the end of this century it is estimated that there will be 130 million people over sixty years old. The Ministry has requested that various medical departments throughout the country emphasize prevention and treatment of frequently encountered diseases of the old and carry on a program of education to teach people how to keep fit and prevent disease and disabilities. Epidemiological services are to carry out surveys and pinpoint problems. Hospitals at the county level or above should open more special geriatric clinics.

The Ministry organises national conferences to discuss problems and ideas for helping the aged, including deliberation on ways of how old people can contribute to China's socialist modernisation program. Just a year ago, 140 senior state leaders and experts attended a ten-day conference in Beijing. One of the principles that the government and public health services recommended is that efforts by the government, the society, the family and the individual should carry on collaborative efforts to improve the care of the old.

A National Commission of the Aged was founded in Nanking in 1982 to meet the problem of the growing number of old people. The Commission recommended that work for the welfare of the aged should be based on further studies of sociology, sports, health care and the solution of intrapersonal problems involving elders and their family members. Such studies will enable the establishment of a "law for the aged" and relevant policies. China, now, has 10 magazines and newspapers for the elderly with such titles as "Longevity", "Newspaper of the Aged" and others. It is felt that intensive public education should be carried on the achieve a better social understanding of the issue of the "graying of China".

As for the role of the old workers and retired people, it is stressed that they have an abundent knowledge and practical experience which they can continue to contribute to the country in its drive for modernisation. Ways and means should be applied to make use of this.

At present, China has 14,000 various nursing homes accommodating thousands of senior citizens who have no dependents or relatives to take care of them. In addition to the Ministry of Health, China's Civil Affairs Ministry and their various departments also participate in welfare work for the aged. To place the "graying" of China's population in a historical context, especially noting recent history from 1949 to 1985, certain explanations exist to clarify why the ageing population has grown so rapidly and so explosively. At the time of liberation in 1949 the average life-span was 35 years and now the average is 68½ years (1984). The Chinese people are living longer because in the past 35 years they have for the first time adequate clothing, shelter, nutrition, education and nationwide health services. Thirty-five years ago the death rates were high from acute epidemics, communicable diseases, malnutrition, infant mortality, not to mention death from wars and natural disasters. For example, infant mortality was as high as 200 to 300 per thousand live births. Since then, great progress has been made in all fields including the establishment of a nationwide health service, child and maternal health care networks and epidemic prevention stations. Hospitals and medical training colleges were established or expanded. There are over three million medical workers serving our population. Today there has been a tremendous decrease in infant mortality which has helped to contribute to the increase in life expectancy to 68½ years.

In the city of Beijing in 1949, the mortality tables showed that the causes of death on the list was cardiovascular disease and the twelfth was cancer. Now, the number one cause of death in Beijing's mortality statistics is either cardiovascular disease or cancer, the two diseases vying for the first place in different years. This indicates that great progress has been made in eliminating and controlling many of the infectious and communicable diseases. But, it also indicates that people are now living long enough to reach an age where the risks of getting cancer and heart disease are greater. Progress has brought its own problems, these are the problems of an older populaton growing faster than can be handled satisfactorily.

Because of China's ancient civilization and culture the extended family has been the mainstay of society. Included in this is the role of the elders in the family. On the one hand, the elders are the respected heads of this social unit, possessing greater authority and contributing their wisdom and knowledge to help the other members of the family. In turn, they are taken care of as an accepted responsibility of the family. This tradition has been carried on into the present stage of Chinese history. This means that the family takes care of their elder members and the great majority of the senior citizens enjoy warm and loving care from their families and progeny.

At present, China's old people can still expect to spend their old age among their family members. They can still rely on the care and support from their children or relatives and pensions and social security from the people's government. Most Chinese old people in urban areas live with their children who have their own incomes. There are several patterns prevailing in these households. Unmarried children give all or a part of their monthly income to their parents who take charge of the family budget. Married children give only a part of their income. This method works, because it accommodates the different tastes of the two generations living together. Of course, some children prefer total independence from their parents. According to a study in Shanghai, China's largest city, old people from age 50 to 74 enjoy doing household chores for their children. They do such work as shopping, washing and cooking. Since old people become at times psychologically dispirited, it is important that they receive from their children or society psychological help in addition to material supports. New services and organizations are being formed to help buy food and cook for the old and encourage them to enjoy social activities. In some suburban areas of Shanghai, collectively financed apartments and homes for the aged are being built. A school has opened for the aged in the picturesque Hangzhou's West Lake which has enrolled 400 old retirees with an average age of 64. The school gives courses in health care, traditional painting, cooking, calligraphy and gardening, taught by professors, lecturers, doctors, chefs and painters. These graduates receive a special certificate after two years of study. It is quite common to see reported in the daily newspapers various exhibitions of calligraphy, paintings, and art by senior citizens.

In earlier times, having five generations living under one roof was a sign of great happiness for the family. Today, however, China is faced with a number of problems which will become more serious as time goes on. The drive for modernization may have a fragmenting effect on the extended family structure. The pressure of population growth on housing facilities exacerbated by the lack of enough financial capabilities in a developing country like China to deal quickly with these may cause temporary difficulties in dealing with these problems. The policy of "one-child per family", a necessity of population planning, will bring an additional pressure to the problem of aging, where four to six grandparents will have to be supported by only one or two people in a family. There are many factors which will help solve these problems because the social mores in China are based on the idea of caring for your fellow-man (woman), mutual interdependence and mutual help among people. The habit of joint responsibility of all members of society including the individual, the family, the government and societal organisations to assume more and more responsibility will continue to play a positive role. As China becomes wealthier and socialist modernisation of agriculture, industry, science and technology and defence become more successful, much can be done to solve these difficulties.

The goal of China is to quadruple the growth of its gross national product (GNP) by the year 2000. With all these factors operating, a bright future for our senior citizens is anticipated. The spirit of the aged folk in China is epitomised in a calligraph scroll by a senior citizen, marshall Xu Xiangqian, 82. The calligraphy translates as "an old horse in the stable still expects to gallop a thousand miles, and the heart of a hero in his old age is as stout as ever."

Dr. MACFADYEN. Thank you very much, Dr. Ma. I think that there are some startling figures presented there. And I think if you are concerned in the United States about some six or seven more elders in the year 2000, here is China with 30 million more by the year 2000.

The next speaker I have the great pleasure to introduce is Dr. Jorge Litvak who is my colleague from the Pan American Health Organization in Washington. Dr. Litvak is chief of the adult health program in Washington of the Pan American Health Organization.

He studied medicine in Chile and in the United States, and has held teaching hospital positions in these countries. He has received honors in the fields of endocrinology and nuclear medicine and has participated in many international meetings. Dr. Litvak will present social and medical epidemiological aspects of aging in Latin America.

Dr. Litvak.

STATEMENT OF DR. JORGE LITVAK, WASHINGTON, DC, COORDINATOR, ADULT HEALTH PROGRAM, PAN AMERICAN HEALTH ORGANIZATION

Dr. LITVAK. Thank you, Dr. Macfadyen.

Senator Glenn, ladies and gentlemen, it is a real privilege for me to be part of this meeting on behalf of the Pan American Health Organization, the regional office for the Americas of the World Health Organization.

The developing countries of this region, particularly Latin America and the Caribbean, are experiencing important changes from a demographic and epidemiological point of view. From a health perspective these are countries in transition. The demographic pattern is characterized by the fall in birth and mortality rates and a dramatic increase in life expectancy. The dramatic growth in the numbers of the elderly expected for the period 1980 to 2000 is approximately 23 to 40 million. I feel very humble in giving these figures after listening to Dr. Ma. The most significant problems faced in trying to respond to the aging of population in developing countries are the definition of the actual needs of the elderly population, which are obviously different from the industrialized world; and the adoption of policies and problems consistent with such needs.

At least three surveys have been conducted about the elderly in the region: Uruguay in 1978, Costa Rica in 1979, and Mexico in 1981 These studies give support for at least three major generalizations: (a) That there are remarkable similarities in terms of perceived problems and needs among the elderly in these countries; (b) the elderly has a wide variety of problems and needs; and (c) the studies give support to the information secured by PAHO from many member countries in 1982 that the region shows critical deficits in the area of services for the elderly.

The regional plan of action developed by all member governments of the Pan American Health Organization in order to implement the regional strategies to obtain the goal of health for all by the year 2000, states that programs aimed at the protection and promotion of health of the aged must be intersectoral and should meet their health and social needs in an integrated model. The plan places special emphasis on the study and analysis of the magnitude of the problem of the elderly; the development of comprehensive approaches within the health and social services aimed at providing continuity and quality care to the elderly; the promotion of the concept of self and family care and the importance of community participation. All of these, within the context of primary health care.

To accomplish these goals, a social and medical survey is being conducted by PAHO to assess the extent of the problem of the el-

derly, particularly the changes being experienced in the family and community support. These epidemiological studies are being held in 11 countries, including 4 from the Caribbean. The study is supported in part by the U.N. trust fund created after the U.N. World Assembly on Aging. The preliminary results of the study will be presented at the International Congress for Gerontology.

Furthermore, a briefing on health care for the elderly was held in October 1984, in order to discuss the services, policies and programs already existing in the industrialized world, and to discuss with national planners and health professionals from Latin America and the Caribbean, how to adapt, transfer and modify experiences being applied elsewhere. Following this brief and along with the results of the survey mentioned above, subregional interagency workshops are being held in the region to define policies and programs for the elderly based on actual needs.

In October 1985, in Buenos Aires, Argentina, Chile and Uruguay will hold one. And in November 1985, another one for the countries of Central America in San Jose, Costa Rica.

I am pleased, therefore, to conclude that our member governments are committed to defining alternatives, other than institutionalization, for the care of the elderly. To define the role of the community, the family, and the elderly themselves in the programs and the socioeconomic implications of the growth of this age group.

Thank you very much.

[The prepared statement of Dr. Litvak follows:]

PREPARED STATEMENT OF DR. JORGE LITVAK ON ELDERLY IN LATIN AMERICAN AND CARIBBEAN COUNTRIES

REGIONAL PROGRAM

The general process of development that has characterized Latin America and the Caribbean for the last 30 years has faciliated the broadening and improvement of governmental services in public health, social security and public administration. During this period, many countries have also experienced important changes in morbidity and mortality patterns, a fall in birth rates, and a dramatic increase in life expectancy (Tables 1, 2 and 3).

The resulting aging of the Latin America and Caribbean population is reflected in the dramatic growth in the numbers of the elderly (60 and over) expected for the period 1980–2000, from approximately 23.3 million to 40.7 million people (Table 4). As has been the experience in other regions of the world, the fastest growing population group is the older age group (especially those 75 years of age and older and largely for women's group), which is characterized by growing health problems and needs and a high degree of turnover.

The aging population phenomenon has an important potential influence in both the future patterns of socio-economic development in general, and on the health services delivery systems in the Region in particular. With age the individual experiences a number of biological, physiological, psychological and socio-economic changes that increase the vulnerability to a series of problems often requiring comprehensive health care services which are not always present in Latin America and the Caribbean. The growing lag between the increasing needs of older persons and the willingness and/or capability to provide such needed services, raises important questions about the systematic potential for planning and implementing health programs and services for the elderly in the Region.

Two of the most significant problems faced in trying to respond to the aging of population phenomenon are: (a) definition of needs of the elderly population, and (b) adoption of strategies for planning and developing health services delivery systems.

At least three country-based research projects have been conducted about the elderly in the Region: Uruguay (1978), Costa Rica (1979), and Mexico (1981). These studies give empirical support for at least three major generalizations: (a) there are remarkable similarities in terms of perceived problems and needs among the elderly

in these countries; (b) the elderly has a wide variety of problems and needs; (c) the studies given support to the information secured by PAHO from many Member Countries in 1982, that the Region shows critical deficits in the area of services for the elderly.

The available information about services for the elderly shows important problems in terms of numbers and effectiveness. In general, these services are limited to either some sort of social security mechanism (i.e., pensions), or to institutional arrangements designed to serve the need for shelter and food of the destituted elderly, the traditional "asilos" (nursing homes for the elderly). In the last five years or so, in some countries they have established institutions such as day care centers, clubs for senior citizens or similar facilities for the elderly living in the community. Whether sponsor and/or financed by the state or the community such arrangements have proved to have a rather limited impact in solving the complex problems affecting the elderly in the Region.

On the balance, the Region shows serious deficiencies in their health care systems. Failure to provide health care services to important sectors of the population (particularly the rural sector), is further compound by the lack of adequate facilities and trained personnel for providing long-term care for the elderly. The maintenance of prevalent trends and practices would make it extremely difficult for the health systems to maintain even the present limited levels of services due to demographic changes, increasing health care costs, rising expectations and resulting increasing demands for professional care, and the regional trends in socio-economic development.

The traditional piecemeal approach to health and social service delivery systems had led too often to expensive and irrelevant services, which have a limited impact on the needs of the elderly. This approach denies appropriate resources to strengthen natural support systems, and fails both to prevent the premature institutionalization of the elderly and to foster the development of high levels of service in institutional care facilities. This approach, in consequence, must be abandoned and substituted by a more rational and comprehensive one.

The Regional Plan of Action, developed by PAHO/WHO in order to implement the Regional Strategies aimed to secure "Health for All by the Year 2000," offers alternative approaches for dealing with the complex health problems of the elderly in the Region. Briefly, the Regional Strategies emphasize the importance of Primary Health Care and its component strategies to attain the goal of HFA/2000. These strategies include: the extension of health services coverage and environmental improvement; community organization and participation; improvements of mechanisms for intersectoral linkages; development of research and appropriate technologies; development of human resources; the availability and production of critical supplies and equipment; the establishment of national systems for financing the health sector; and the reorientation of international cooperation.

The Plan of Action, on the other hand, deals with the problems of the elderly in a more detailed fashion. The program states that programs aimed at the protection and promotion of health of the aged must be intersectoral, multifacted, and should meet their health and social needs in an integrated model. The Plan places special emphasis on the study and analysis of the magnitude of the problems of the elderly; the development of comprehensive care approaches within the health and social services aimed at providing continuity and quality care to the elderly; the promotion of the concept of self and family care, and the importance of community participation through its pertinent organizations.

Finally, the Plan sets four areas of actions: a) assessment of the situation and adoption of policies for health care delivery to elderly population groups; b) development of comprehensive care for the elderly within general health services; c) promotion and development of community action programs, and d) development of human resources.

Policy-makers and public health planners in the Region share a basic consensus that the framework and guidelines adopted by PAHO/WHO offer both rational and sensible strategies for securing at the country level the goal of HFA/2000.

NEEDS OF THE ELDERLY SURVEY

The PAHO Member Governments have recently recognized the elderly as priority group. Such a recognition has already promoted actions oriented to explore the aging phenomenon and its impact on the major institutional systems operating in the health and social areas. Moreover, increased interest has been paid to attempts for launching epidemiological studies aimed to gather basic information on the elderly, their needs and the services existing for coping with their problems. The re-

sults of these studies will prove to be useful for health planner aiming to increase the rationality of policymaking processes and help also to widen support for such efforts through broadened public awareness of the health and social needs of the elderly.

To accomplish the above mentioned goal, a social-medical survey has been designed by PAHO with the active collaboration of Wayne State University (Detroit, Michigan).

The survey has been designed to assess the extent of the health problems of the elderly, and thereby facilitate the implementation of integrated care approaches in social and health services in order to ensure the continuity and quality of care, promotion of the concept of self-care and participation of the family and the organized community in such activities.

PAHO is responsible for submitting the protocol, the questionnaire and the Manuals for the Survey and it will also be responsible for the data processing. The participating countries are responsible to provide the necessary resources for the implementation of the study: salaries, per diem, transportation, training, logistical support, printing of documents, etc. The UN Trust Fund has recently approved a grant to support the participating countries costs. When the survey is completed, PAHO will send the processed and analyzed data to the countries to interpret it and to adopt the necessary policies. The survey will focus on the urban elderly population through a random sample.

Up to now, 11 countries are participating in the study, including four from the Caribbean: Barbados, Guyana, Jamaica and Trinidad and Tobago. The questionnaire was tried in three countries, one of them was Barbados and the test results served to state the effectiveness and adequacy of the instrument.

In order to discuss the survey and its documents, a meeting took place at PAHO/HQ in December 1983, and was attended by a three-member-delegation from each participating country, the five members Steering Committee appointed by the Director to advise the Health of the Elderly Program activities and the PAHO/WHO Secretariat. The recommendations and suggestions emanating from this meeting were incorporated in the questionnaire and a final version was prepared and set to the principal investigator in each participating county.

During the first 1984 quarter, all four Caribbean countries were visited by two Steering Committee members for the following purpose: a) to provide advisory services to the countries in the preparation of the survey; b) to review together with the principal investigator and appropriate staff, the national perspectives of the planning and execution of the survey; c) to give emphasis to the actions derived from the sample design; d) to stimulate the preparation of a budget appropriate for the adequate implementation of the survey.

The preliminary results of the study will be presented at this 13th Annual Meeting of the International Association of Gerontology, 17–23 July 1985, New York, U.S.A.

BRIEF ON HEALTH CARE AND THE ELDERLY

A briefing of Health Care and the Elderly was held from 15 to 19 October 1984, at the Pan American Health Organization in Washington, D.C. The subject of the briefing was a description and critical assessment of health policy and services developed in the industrialized countries of North America and Europe, consisting of topics such as primary health services, hospital services, long-term care, home-and community-based care, training health and social personnel, social factors influencing health, financing health care, national planning and the need and uses of information and research.

The briefing mentioned above was supported by the Pan American Health Organization, Health Care Program for the Elderly; World Health Organization's Global Program, Health for the Elderly; Kellogg International Scholarship Program on Health and Aging: The University of Michigan's Institute of Gerontology and the University of Copenhagen's Institute of Social Medicine.

The overall purpose of the briefing was to encourage and inform national planners and health professionals in Latin America and Caribbean countries about comprehensive planning for the health of the elderly.

The objectives of the briefing were:

a. To identify critical policy questions that need to be addresed by Latin America and Caribbean countries as they plan for the health care of their elderly population.

b. To describe and critically assess the experience of North America and European countries in addressing similar questions.

c. To identify resources that may be useful to national planners and health and social professionals in Latin America and the Caribbean.

d. To provide encouragement by showing examples of how critical health issues have been addressed by different countries.

The program was organized around topics important to national planners and health experts in Latin American and Caribbean countries as they plan health services for the elderly in their countries.

Leadership of the briefing came from health experts recruited by the sponsors. The intention was to draw experience of North American and European countries to show how elderly health issues have been faced by these countries and, critically, assess these experiences in light of the need of Latin American and Caribbean countries.

Following this Brief, and along with the results of the survey mentioned above, subregional inter-agency workshops will be held in the Region to define policies and programs for the elderly based on actual needs: in October 1985 in Buenos Aires for Argentina, Chile and Uruguay, and in November 1985 for the countries of Central America, in San Jose, Costa Rica.

PAHO will continue to work with Member Governments in defining alternatives—other than institutionalization—for the care of the elderly; the role of the community, the family and the elderly themselves in the programs, and the socio-economic implications of the growth of this age group.

Two U.S.A. WHO Collabroating Centers are assisting PAHO in this endeavor: The National Institute of Aging (NIA/NIH) and the Duke University Center for the Study of Aging and Human Development.

TABLE 1.—REGION OF THE AMERICAS, CRUDE MORTALITY RATES PER 1,000 POPULATION, 1970–2000

Region	1970–75	1975–2000	Percent change
Latin America	9.4	6.0	−36
Caribbean	7.2	5.9	−18
North America	9.2	9.8	+7

Source: Pan American Health Organization, 1980.

TABLE 2.—REGION OF THE AMERICAS, CRUDE BIRTH RATES PER 1,000 POPULATION, 1970–2000

	1970–75	1975–2000	Percent change
Latin America	36.4	29.7	−18
Caribbean	30.1	19.6	−35
North America	15.8	14.2	−10

Source: United Nations, "World Population, 1980."

TABLE 3.—REGION OF THE AMERICAS, LIFE EXPECTANCY AT BIRTH (31 COUNTRIES), 1965–2000

Region	1965–70	1995–2000
Total region (31)	64.9	71.1
Latin America (21)	60.0	70.4
Caribbean (8)	66.7	73.2
North America (2)	70.6	72.5

Source: United Nations, Population Division, 1979

TABLE 4.—POPULATION BY MAJOR AGE GROUPS

[Millions and percentages]

Region and year	Age					
	0 to 14		15 to 59		60 and over	
	Number	Percent	Number	Percent	Number	Percent
Latin America and Caribbean:						
1980	144.7	39.8	195.7	53.8	23.3	6.4
2000	196.3	34.7	328.7	58.1	40.7	7.2
2025	250.9	29.0	520.9	60.2	93.4	10.8
North America:						
1980	57.0	23.0	153.9	62.1	36.9	14.9
2000	65.7	22.0	188.5	63.1	44.6	14.9
2025	70.1	20.4	197.1	57.4	76.3	22.2

Source: Latin American Demography Center (CELADE), 1981

Dr. MACFADYEN. Thank you very much indeed, Dr. Litvak, and especially for presenting your comments so briefly.

I would like now to have the opportunity for a presentation by Her Excellency Julia Alvarez, who is the Ambassador to the United Nations from the Dominican Republic. We have a limited time before lunch, and I would like us particularly to pay attention to what has been proposed by Ambassador Alvarez, which is to establish a UNICEF-type organization to deal with the social, economic, and cultural problems caused by "the graying of nations."

Ambassador Alvarez.

STATEMENT OF AMBASSADOR JULIA TAVARES DE ALVAREZ, U.N. AMBASSADOR FROM THE DOMINICAN REPUBLIC

Ambassador ALVAREZ. Senator, Dr. Macfadyen, I feel most honored to have been invited to participate in this special committee hearing, and I welcome the opportunity to explain the United Nations' response to the problems caused by the graying of nations.

The United Nations in its Universal Declaration of Human Rights guarantees that "everyone has the right to a standard of living adequate for the health and well-being of himself and his family and the right to security in the event of unemployment, sickness, disability, widowhood and old age."

Among those particularly vulnerable populations whose human rights the United Nations has deemed necessary to protect with additional declarations, conventions, specialized bodies and other measures are women, children, the disabled, migrant workers, persons belonging to ethnic, religious and linguistic minorities, and the aged.

In reviewing some of these measures and organizations established for the protection of these vulnerable populations, I have been struck by how the aged population has been one of the most neglected. Although old age is the universal experience and we live in an aging world, it is precisely the aged that the United Nations has least protected by specific measures

Children have had their rights protected by the Universal Declaration of the Rights of the Child and by UNICEF, a specialized agency that deals with children's issues. The disabled's rights have been proclaimed officially in the Universal Declaration of the

Rights of the Disabled. The rights of migrant workers and noncitizens have also been protected by specific official declarations and conventions. Finally, women's rights have found a champion in the Convention on the Elimination of Discrimination Against Women and in a specialized agency, the United Nations Research and Training Institute for the Advancement of Women. This institute, by the way, was established, in spite of the fact that there was already a branch within the Center for Social Development and Humanitarian Affairs of the United Nations, the Vienna Center, to handle women's issues. The United Nations felt, however, that an autonomous, specialized institute was essential in dealing with important and wide ranging issues of women's rights. This institute would complement and enhance the work already being done by the women's branch of the Vienna Center.

But alas, the aged have not been so fortunate. Although various resolutions have been passed dealing with the issues of the elderly, the history of the United Nations' concern with the rights of the aged has been one of good intentions but no concerted actions.

Let me briefly trace this history for you.

The first focused attention to the elderly and their rights came in 1948 when Argentina submitted a Draft Declaration of Old Age Rights to the General Assembly for consideration. This declaration affirmed the aged population's rights to food, clothing, health care, and work, as well as other less tangible but nonetheless important necessities, such as assistance, recreation, stability and respect. The declaration also recommended that the United Nations carry out studies with a view to implementing these rights universally in order to ensure the fuller social and economic protection of mankind. But this declaration remained on the agenda of the United Nations for many years and never became official.

It does seem incredible that although a Declaration of the Rights of the Child, a Declaration of the Rights of the Disabled, a Declaration on the Equality of Women exist, no such parallel official U.N. declaration exists to protect the rights of the aged.

In 1969 the delegation of Malta requested that an item entitled "The Question of the Elderly and the Aged" be included in the agenda of the General Assembly. Declaration in 1948, now "item," and even this item remained on the agenda for many years without any action being taken.

Finally in 1978 the issues of the aged gained the attention of the United Nations. The General Assembly, realizing that all regions of the world were witnessing an increase in the size of their aged population, an increase that would have serious social and economic implications for their societies and the world, made the historic decision to convene the World Assembly on Aging in Vienna in 1982.

Those of us who had long been concerned with the apparent neglect toward the aged saw in the World Assembly on Aging the beginning of focused and committed attention and action on the part of the United Nations toward this long ignored segment of the world's population.

Indeed, the World Assembly was a success. It was attended by 124 member states of the United Nations, a sign in and of itself that the issues of the aged are of concern to both developed and

developing countries. It generated up-to-date information and demographic patterns, as well as projections into the future. It elicited the U.N. Trust Fund for the Aging to supplement existing resources of the United Nations for holding the World Assembly. And it drafted the Vienna International Plan of Action on Aging, the Vienna plan, which included analyses, projections, programs, recommendations and policies to be carried out at the national, regional and international level. The General Assembly of the United Nations voted unanimously to adopt this plan. Just this fact alone of international cooperation at a time of so much global conflict and disagreement was noteworthy and encouraging. Perhaps in acknowledgement of this worldwide need and interest, the United Nations followed up the World Assembly by declaring this the "Age of Aging."

We had come a long way since 1948 and Argentina's failed declaration, since 1969 when the declaration dwindled to an "item" and was ignored. Now we had entered the "Age of Aging."

But many of us at the World Assembly feared that the unanimous Vienna Plan of Action might also dwindle to nothing, unless the international community took advantage of the momentum generated by the Assembly and mobilized its resources. We knew that the mere holding of the World Assembly did not absolve us in the United Nations of further action as we moved on to the next fashionable, political issues. We were concerned that the International Plan of Action be implemented. But there was no existing agency within the United Nations to direct its full attention to the implementation of this plan. Consequently, the responsibility was assigned to the Vienna Center for Social Development and Humanitarian Affairs, which deals with all social and humanitarian issues of the United Nations, including issues relating to women, minorities, human rights, the family, et cetera. To this long list and to an already busy center was now added the responsibility of implementing the plan of action. The center was to serve as the focal point in matters related to the aging, utilizing existing global resources of the United Nations and the balance remaining in the trust fund after the World Assembly.

At the time of the World Assembly some of us were afraid that the issues of the elderly needed the full attention of a specific agency. The implementation of the Vienna plan would have to share equal time, energy and resources with other pressing humanitarian and social issues of the Center for Social Development and Humanitarian Affairs. For this reason we voiced our concern and suggested that the United Nations should begin to study the possibility of establishing an autonomous United Nations agency specifically addressed to the issues of the aged. We knew that such an agency would require time and lobbying to create, but we wanted to sow its seed at the World Assembly. We trusted, as we still do, in the excellent work of the Vienna center. Also, we did not want to push prematurely for an autonomous agency. After years of neglect of the aging, the United Nations was beginning to crawl by convening the World Assembly; we wanted to give its commitment time to mature.

But our fears have proven true since 1982. The issues drafted in the Vienna plan at the World Assembly have not received the full

attention or implementation they deserve. And it is certainly not the center's fault. The center does not have the staff or the resources to devote itself to one important, pressing problem or one particularly needy segment of the population. Indeed, if you will remember at the start of this presentation, I mentioned that the United Nations established a Women's Research and Training Institute, even though there was already a branch in the Vienna center dealing with women's issues. The pressing concerns and needs of women throughout the world required not just a branch in a busy and wide-ranging center, but an autonomous institute to dedicate itself wholeheartedly to these concerns and needs.

The same holds true for the pressing issues of the aged as enumerated in the Vienna Plan of Action. In order to tackle the problems caused by the aging of the world's population, we need more personnel and more funds than are presently available. The aging unit at the Vienna center consists of a staff which has fluctuated between two and eight professionals, and which has been frequently redeployed, thus weakening the continuity and cohesiveness of its work. The implementation of the plan also depends on a trust fund that has taken a spiral fall.

Let me briefly trace for you the status of this Trust Fund. As you will recall, the Fund was established in 1980 to prepare the World Assembly on Aging. In 1982 the General Assembly, after endorsing the conclusions and recommendations of the World Assembly contained in the Vienna Plan of Action, decided that the remaining resources of, as well as additional contributions to the Trust Fund, should be used to meet the rapidly increasing needs of the aging and to assist member states, at their request, in formulating and implementing policies and programs for the elderly.

Contributions to the Trust Fund in 1980 amounted to $250,000. From 1981 through 1983 they totaled $1,141,559. In 1984 they had dwindled down to $36,000. Our hopes and dreams at the World Assembly have taken a plunge—together with the Fund. The Age of Aging threatens to have lasted 3 years.

But the needs of the aging are not dwindling—they are growing. In 1950, according to United Nations estimates, there were approximately 200 million persons 60 years of age and over throughout the world. By 1975, their number had increased to 350 million. United Nations projections to the year 2000 indicate that the number will increase to 590 million, and by the year 2025 to over 1 billion, that is, an increase of 224 percent since 1975. During the same period, the world's population as a whole is expected to increase from 4.1 billion to 8.2 billion, an increase of 102 percent. Thus, 45 years from now the aging will constitute 13.7 percent of the world's population, hardly a minority whose problems and needs can be dealth with by a small staff and a small fund. The world population is aging at a rapid, unprecedented rate and the social, economic and cultural problems created by this drastic demographic shift will reach crisis proportions in the next century unless we begin to address these problems now. For those to whom the words "the next century" sound too far to worry about now, let me remind you that the next century is only 15 years away.

What we need in the United Nations is what we brought up at the Advisory Committee for the World Assembly on Aging: an au-

tonomous agency within the United Nations to deal with the pressing needs, problems and issues of this growing segment of the world's population—the aged.

Within the United Nations we have a model for such an agency which was created in answer to a parallel critical demographic shift in population. This model is UNICEF. Few people realize that in 1946 the population of the world was a young one, and the war torn countries, as well as third world countries, simply did not have the resources to provide for such a growing population, many of them war orphans. Hunger, disease, lack of education and health care afflicted the world's treasure: its young. The General Assembly of the United Nations responded to this emergency situation by establishing UNICEF, an agency devoted to the world's young and their pressing needs. So effective and far reaching has been UNICEF'S work that it has been awarded a Nobel Peace Prize and has become a household word.

The United Nations must now respond to another of its threatened global treasures: its old. Since 1946 the demographic tide has shifted, and the same crisis situation children were facing in 1946 will be faced by the world's old in the years to come. The international community must have the vision and the determination to prevent such a crisis now.

Since 1981, I have been advocating the formation of an organization modeled after UNICEF to respond to the needs of the world's aging: The United Nations International Fund for the Aged: UNIFA. This autonomous agency within the United Nations would devote itself exclusively to the issues of the aging population of the world, address its problems, study its demography and implement must needed programs. UNIFA would pool resources from within and without the United Nations system, including those of the preexisting Aging Unit in the Center for Social Development. UNIFA would encourage cooperation among developing countries in exchange of information and technology. UNIFA would serve as an umbrella organization to all our national, regional and international aging organizations allowing us to network with each other and share already existing research and expertise so that we do not diffuse our energies and duplicate each other's work, in a word, lose our elderly to an international bureaucracy.

It seems to me that the United Nations is the logical place for such an international agency to pool together all our resources and handle the problems of the elderly, just as it has effectively handled the problems of children, women, minorities, et cetra. We should utilize this international organization, which belongs to all of us, and create an autonomous agency for the aging. A United Nations International Fund for the Aged, UNIFA, could very well be the answer to the international problems of a graying world.

In closing I would like to urge this committee to encourage congressmen, legislators and policy makers to support the establishment of the United Nations International Fund for the Aged within the United Nations. Both in technological fields and humanitarian issues the United Nations has always played a key role in the free world. Within the United Nations as well, those of us from developing countries, particularly developing countries in this hemisphere, look to this country for support and leadership.

The United States is already a leader within its own borders incaring for its aging population. Senator Glenn, I hope this committee will encourage the U.S. Government to play a key role in the founding of the United Nations International Fund for the Aged, UNIFA, a role which would again single out the United States as a country committed to the future well-being of all citizens of the world.

Thank you.

Dr. MACFADYEN. I do apologize to the last two speakers, but we have tried to finish the session by 12:30.

There remains my own paper, which has been submitted for the record, and I would just like to say what this is: It is a proposal that does not come from me. As Prof. Grimley Evans said, if one wishes to get international coordinated research undertaken in the world, that proposal should come from scientists. So this is a proposal from scientists and it is designed to internationalize the study of the biology of aging, and to develop a rational basis for preventive medicine of the later years of life. And that is all I wish to say.

Dr. BUTLER. Senator Glenn was most sorry he had to leave when he did. He will be back promptly and we will reconvene at 2 o'clock.

He wants to reassure you, as I do, that the full statements of each of the participants will be part of the record, and indeed we will expect that at 2 o'clock some of the last speakers will have an opportunity to be asked some further questions. Some of the questions that Senator Glenn has in mind are very clearly important, including, just as one example, the meaning and impact of the one child per family policy in the People's Republic and its impact in terms of aging So there are many sophisticated and important and complex questions to be asked.

Also I think at first that all of you must be ready to move from some intellectual fare to some other type of fare. In this building on the fifth floor is a cafeteria called Krienler. There is also a basement cafeteria. And I believe you will find downstairs, in the entranceway where you came in, a list of local restaurants, if you choose to go out of the building for that purpose.

We do want to start promptly again at 2 o'clock.

So, we will see you back here at 2 o'clock.

[Luncheon recess.]

Senator GLENN. As I announced this morning for any of you that were not here, this is an official meeting of the Senate Special Committee on Aging. We hold these hearings occasionally outside of Washington, DC, where there is an opportunity to get information or bring together people that can shed some light on problems we are facing with regard to the elderly in this country. This was a particular opportunity for us, the 13th International Conference on Gerontology, and experts are in New York from all over the world. It gave us an opportunity to have a hearing here and share some views on problems in different countries around the world. They may be ahead of us in the aging of the population, or we may be ahead of them, but it is something that we are all facing together as life expectancy goes up. As I said this morning, in the time period around 1900 when my parents were born in this country the life expectancy was only 40 years. And here we are these few dec-

ades later in my own life time, and our life expectancy now is 71 for men, 78 for women. And if you once make it to 65, as a man you can expect almost another 15 years, and as a woman almost another 19 years, on average statistics. I give those statistics only to show what a tremendous progression there has been in aging, in the aging of our population on the average, and to point out also that these same patterns are going on in most nations around the world. And so it is something that we are all facing together and while we certainly want to know how people are taking care of the problems this is causing with regard to housing and finance and everythinq else, we also are interested in what other nations are doing with regard to research. Are increased ages due just to genetics or is it nutrition? Is it climate? Is it whatever? We don't really know all of these answers. It is an infant science really, this science of gerontology.

Mount Sinai has very graciously provided the facilities for us today. It was Dr. Butler who took the lead in putting much of this together; and Dr. James Glenn, who was here with us this morning, who heads up the whole complex here; and Dr. Williams, who will be with us in a few moments, who is the current Director of the National Institute on Aging in Washington, DC. I have asked him when he arrives to be here and share the podium with me and share the chairmanship of this meeting this afternoon.

We had two excellent and very productive panels this morning, as I am sure you will agree. Our only difficulty is in having enough time to really do the questioning that we should do of groups such as this.

I look forward to hearing from our next three participants because I think that we here in the United States usually have a pretty good idea of what is going on regarding aging and plans for how we control the programs with regard to aging. We have a pretty good idea of what is going on in Europe and in the United Kingdom, and in our own country.

But we know a lot less, of course, because of language problems and translation and dissemination about activities in the Eastern Block countries, like Hungary, and the Soviet Union, and in Japan. And that is what we are concentrating on this afternoon.

To open our panel on aging research, we have Dr. Edit Beregi of Budapest, Hungary. Dr. Beregi is the director of the Gerontology Center of the Semmelweis University Medical School, and this gerontology center serves as the center of gerontological research in Hungary. Dr. Beregi has a specialization in pathology and histopathology and cytology and she will tell us more about the aging research underway in Hungary, including research dealing with biological and pathological age-related changes. I also want to note that the Doctor is just one member of a distinguished medical family, as her husband, son, and daughter are all involved in scientific and medical research, and I am sure that that makes for a lot of good dinner table conversation. We could have a separate panel at this hearing just for the family and I am sure we would all learn a lot.

So welcome, Doctor, and we look forward to your testimony.

STATEMENT OF DR. EDIT BEREGI, DIRECTOR, GERONTOLOGY CENTER, SEMMELWEIS MEDICAL SCHOOL, BUDAPEST, HUNGARY

Dr. BEREGI. Senator Glenn, Mr. Chairman, first of all I would like to thank the honor to be asked to speak today here about research on aging in Hungary.

Organized research in the field of gerontology started in Hungary in 1954. There were some activities before that time too. For example, since the 17th century some books were published where age-related changes were mentioned. In 1937 the first gerontological congress was organized in Budapest. These were, however, sporadic activities, and in my presentation I am dealing only with the period after the establishment of the Gerontological Committee of the Hungarian Academy of Sciences in 1954 when organized research started.

The first team work started in 1960 with the examination of the Hungarian centenarians. According to the national census, in 1960 34 individuals reached the age of 100 years and over. The team found only 26 persons alive at the examination. The results were published in a book.

Research on aging is carried out in the following institutes: Gerontology Center of the Semmelweis Medical University, it was founded in 1965; Arteriosclerosis Research Group, founded in 1973; VILEG, Gerontological Research Group in Debrecen, founded in 1979; Second Department of Pathology of the Semmelweis Medical University; Population Statistics Department of the Hungarian Central Statistical Office; social research department of the Hungarian Academy of Sciences, was founded in 1963, but is working in the field of gerontology since 1981; and clinical departments and hospitals.

I would like to summarize briefly the main fields of research activities of the mentioned institutes.

In the gerontology center the main research fields are: longitudinal investigation, latent diseases in the aged, age dependent functional and morphological changes, prevention of age dependent functional and morphological changes. Besides, the task of the center is to collaborate as consultant in all problems concerning aged people, to deliver lectures for medical students, to organize postgraduate training courses.

The Arteriosclerosis Research Group is investigating the role of the immune mechanism in the development of arteriosclerosis. They are studying the circulating immune complexes, antilow density lipoprotein in healthy young and aged and in patients with vascular disease.

The main research field of the Gerontological Research Group in Debrecen is to study the membrane hypothesis of aging. They showed that the membrane damages result in loss of passive permeability for potassium. Accumulation of potassium in the intracellular space increased intracellular viscosity. In the meantime protein synthesis and turnover slowed down. These results support the membrane theory of aging.

The Second Department of Pathology studies the age-related morphological changes in autopsy material in the kidney, in the

pancreas, in the aorta and senile amyloid and emphysema. Vessel changes in diabetics were examined in biopsy material.

In the population statistic department of the Hungarian Central Statistical Office the attention was focused on the age structure of the population on demographic data, on mortality by age and causes of death, and on information on the situation of old people.

The social research department of the Hungarian Academy of Sciences is dealing with the problems of aging since 1981. They are collecting data referring to the social conditions, financial situation, intergeneration problems, claim of care of the aged.

A considerable body of gerontological research is in progress in Hungary. I tried to give only a brief survey about the main research trends with the aim to improve the life of the aged.

Thank you.

[The prepared statement of Dr. Beregi follows:]

PREPARED STATEMENT OF DR. EDIT BEREGI

In Hungary, organized research started in 1954 with the establishment of the Gerontological Committee of the Hungarian Academy of Sciences. The activity of the Committee included organization of scientific meetings and postgraduate courses, coordination of gerontological research. The Hungarian Gerontological Association took over this task in 1967.

The first team work started in 1960 when a gerontological team examined the Hungarian Centenarians.

According to the National Census in 1960 34 individuals reached the age of 100 years. The team found only 26 persons alive at the examination. The results were published in a book. This book was one of the first publications about the health and living conditions of Centenarians. Now we plan to examine again the Centenarians and to compare their data with those of the previous examination.

The Gerontology Center of the Semmelweis University Medical School was established in 1965 and now it is the center of gerontological research. In addition gerontological research is carried out in several institutes, I mention only a few of them: Arteriosclerosis Research Group of the Semmelweis University Medical School; V.I.L.E.G. Gerontological Research Group, University Medical School Debrecen; II. Department of Pathology of the Semmelweis University Medical School; Population Statistical Department of the Hungarian Central Statistical Office; Social Research Department of the Hungarian Academy of Sciences and in several clinical departments and hospitals.

The task and main research fields of the institutes mentioned are the following:

THE GERONTOLOGY CENTER

Some general remarks about the task of the Gerontology Center: The Gerontology Center is called upon as consultant in all problems concerning aged people: for example in social and health care problems; in preparing the long-term plan for the aged; in organizing health educational lectures etc. Furthermore, the Center organises postgraduate training courses, and from this year gerontology is included into the curricula of the medical students.

In the Center we organize a gerontological consultation for aged people in every second week, and due to our proposal the University of Third Age was established in Budapest and in some other towns.

RESEARCH WORK IN THE GERONTOLOGY CENTER

The goal of research work at the Gerontology Center is to study biological age related alterations and to separate them from pathological changes, to find methods which enable us to prolong the physically and intellectually active life span, to control the development of biological and pathological age related changes, to inhibit or delay these changes.

The basic concept of the Center's foundation was to link scientific research work with practical problems. This was realized by setting up the clinical ward in addition to the research laboratories.

Persons apparently healthy are admitted to the clinical ward, men at 60 years and over, women at the age of 55 years and over. The clinical examination offers information about the actual health condition, and—by follow up investigations—to study the process of aging and the most frequent diseases in the aged.

The main research topics of the Clinical ward are thus: "Longitudinal investigation in the aged", "Diseases in the aged".

Main topics of the research laboratories: "Age dependent functional and morphological changes", "Prevention of age dependent functional and morphological changes".

The longitudinal studies revealed that the most frequent diseases were those of the circulatory system, i.e., heart failure, chronic ischaemic heart disease, hypertensive disease, and cerebrovascular disease. During the follow-up periods the frequency of chronic ischaemic heart diseases and cerebrovascular diseases increased significantly. Ophthalmological examinations showed that the frequency of cataract and fundus-sclerosis increased during a 10-year-period, on the contrary visual acuity declined. Among diseases of the urinary system hyperplasia of prostate proved to be a frequent occurrence and in the follow-up period it became even more frequent.

Mineral content of the bones was studied, too. We could state that mineral content of the bones declined with aging and in heavy smokers this was more pronounced than in non smokers.

In the longitudinal investigation reaction time of the patients was also studied. During aging no decline in the reaction time was found but diseases, especially cerebrosclerosis, resulted in increase of the reaction time.

The immunological laboratory investigates the occurrence and level of autoantibodies, the serum IgG, IgA and IgM levels, the number of T and B lymphocytes and some functional tests of the lymphocytes.

An important research topic of the Center deals with the prevention of age dependent functional and morphological changes, and with the prevention of diseases. This topic can be approached first of all by clarifying some age related changes and most frequent diseases in humans and experimental animals.

In previous investigations we examined the primary and secondary immune responses of young and old Wistar rats and we found age-related morphological alterations in the lymphocytes of both immunised and untreated control rats. The same age-related damages were observed in the lymph node and spleen lymphocytes in old Wistar rats and CBA/Ca mice and in the peripheral lymphocytes of healthy humans. Electronmicroscopical investigation showed degenerative changes in the mitochondria and in the cytoplasm of the lymphocytes.

We stated that the occurrence of individuals with damaged mitochondria is significantly higher between 50–79 years of age than below 50 years. In 6 years follow-up the number of cohorts with mitochondrial damage increased.

As we have found the same age related changes in lymphocytes of experimental animals and humans, we are using lymphocytes to study the putative preventing effect of different drugs. We observed that in CBA/Ca mice the mitochondrial changes develop after 450 days. In addition, we elaborated other parameters to be able to measure the effect of different drugs on aging.

We examined for that purpose the following parameters, too: cold adaptation, ^{75}Se-seleno-methionine turnover; life span, body and organs' weight, organs' indices, frequency of diseases and age of animals at the beginning of diseases. I will not enter into the details about the different parameters but I want to mention that the most frequent diseases were hepatocellular carcinoma and amyloidosis from the age of 450 days. Now we are studying the effect of the following chemicals: 1/ antioxidants /2-mercaptoethanol/ /2-ME/, 2/ /Immunoadjuvants /Poly /A/ and poly / A=U/, 3/ /Free-radical scavangers and others /centrophenoxine /CX/, aminoethyl-isothiuronium. Br.HBr /AET/, superoxid-dismutase, 6-/4-hydroxy-3-methyl-2-butenyl/ aminopurine /zeatin/, 4/ Some combinations of these.

These studies are in progress. The first results showed that 2-ME and combination of 2-MEA with CX or zeatin is beneficial on some age related functional changes and diseases. The future plan of the Center is to examine environmental factors on age related alteration and to examine the Hungarian Centenerians.

The Arteriosclerosis Research Group of the Semmelweis Medical University was established in 1973.

They examine the role of immunological changes in vascular diseases, especially in arteriosclerosis. The incidence of circulating immune complexes, anti-low density lipoprotein was studied in healthy young and aged controls and in patients with vascular diseases.

Circulating immune complexes /CIC/ frequently occurred both in young and old patients with vascular disease and in the aged healthy control groups as well,

whereas they could not be found in young controls. Marked differences were found in the incidence of anti-low density lipoprotein /LDL/. In both young and aged control groups such antibodies were observed vary rarely /4–5%/. In contrast, anti-LDL antibodies were present in 34–45%, in the aged and young patients with vascular diseases. Similarly, no anti-LDL activity was found in CIC of the controls, whereas in the patients with vascular diseases a significant CIC-associated anti-LDL activity was detected. These results suggest that the presence of anti-LDL antibodies are associated with the arteriosclerotic manifestations, while that of circulating immune complexes is connected with the aging process itself.

V.I.L.E.G. Gerontologial Research Group, University Medical School, Debrecen was founded in 1979 in the frame of a long-term cooperation program between the University Medical School of Debrecen /Hungary/ and the National Institute of Gerontology /INCRA, Rome-Ancona, Italy/. The name was choosen to commemorate F. Verzár, /V.I.L.E.G.-Verzár International Laboratory for Experimental Gerontology/.

The research field of the Hungarian Section of VILEG has been the cellular mechanism of aging, especially from the point of view of the membrane hypothesis of aging elaborated during the mid-seventies. Detailed testing of the predictions of this hypothesis by means of a complex, interdisciplinary approach resulted in the following main conclusions:

The leading point of the aging process at cellular level is a deterioration of the cell membrance structure and functions due to some chemical and physical damages like free-radical induced cross-linking of proteins, lipids, etc. Due to the more compact structure of the membranes, the rate of damage is always higher in them than in the cytosol. The membrance damages result in a loss of passive permeability of the cells for potassium/and probably also for water/. This phenomenon causes an accumulation of potassium in the intracellular colloidal system. At the increased intracellular viscosity all the enzyme processes slow down including the rates of total and mRNA synthesis. Obviously, the protein synthesis rate and the turnover of proteins is also slowed down considerably. Some membrane protective free-radical scavengers /like centrophenoxine/ are able to reverse this process to a certain extent. This direction of research is being continued with concentrated efforts within the Hungarian Section of VILEG.

In the II. Department of Pathology morphological examinations are carried out in autopsy and biopsy materials. Senile amyloid, age related morphological changes in the kidney, pancreas, aorta and tuberculosis in the aged were examined. Recently senile emphysema and small vessel changes in diabetics over 50 years of age was studied. They stated that in senile emphysema the thickness of elastic fibres in the lungs increased parallelly with aging and they were more rapidly digested by elastase. This was considered to be the morphological equivalent of their decreased elasticity. Simultaneously with changes of the elastic fibres proportion of reticuline and collagen fibres increased. In the small vessels of cutaneous biopsy samples of diabetics the thickening and multiplicity of basal lamina were remarkable in the age.

At the Population Statistics Department of the Hungarian Central Statistical Office the following studies referring to aged persons are in progress:

Permanent observation of the age structure of the population; analysis of the causes of changes belong to the main tasks of the Department. The data of the age-structure show that within the Hungarian population the number of elder people grows to a greater extent than the number of young persons.

The development of the age-structure is motivated by the development of the number of births and deaths. The Department deals systematically both with the detailed observation of fertility and with the study of mortality by age and causes of death.

At present data of the 1984 microcensus give the widest information on the situation of old people.

In addition, they studied demographic data, health status, housing data, activity, living condition, financial situation etc. of pensioners. These data will be important in future planning for the elderly.

The Social Research Department of the Hungarian Academy of Sciences was founded in 1963 and is dealing with the problems of the aged since 1981. They collect data referring to the social condition, financial situation, intergeneration problems and claim of care of the aged. One of the tasks of the Social Research Department is to elaborate comprehensive social conception to fulfill the requirements of the aged.

In addition, research on gerontology is carried out in several clinical departments and hospitals by persons interested in the health of the aged. Because of the lack of time I cannot go into details of these examinations. These researchers deal with

drug therapy in old age, respiratory and cardiovascular changes, changes in resorption and adequate nutrition, hormonal disorders, alterations of bones and joint, etc.

A considerable body of gerontological research is in progress and the variety of research topics points to the manifolded interests of biologists, physicians and sociologists in gerontological research. Gerontological research is considered to be very important, since its results might be helpful to improve the health of the aged and to prolong the active period of life.—Budapest, June, 1985.

Senator GLENN. Very nice. Thank you very much, Doctor. I might add that your paper, your excellent paper, goes into much more depth and much more technical detail in many of these areas. And I should have announced this morning at the opening of our meeting that the more lengthy papers from which all of our participants today have spoken briefly, will be included in full in our committee record.

Our next speaker is Dr. Dimitri Chebotarev, director of the Institute of Gerontology of the U.S.S.R., the Soviet's Academy of Medical Sciences. The institute is the lead organization in the U.S.S.R. in the field of gerontology and coordinates gerontological research conducted by other scientific institutions of the country. The institute develops programs for medical schools and for advanced training of physicians and works with the Soviet health care system to further develop the provision of geriatric services.

Dr. Chebotarev participated in our 1977 hearing on the graying of nations, and we are very pleased to have him back with us today to discuss aging research in the Soviet Union.

Doctor, welcome, and we look forward to your words.

STATEMENT OF D.F. CHEBOTAREV, DIRECTOR, INSTITUTE OF GERONTOLOGY, AMS, U.S.S.R., KIEV, U.S.S.R.

Dr. CHEBOTAREV. We meet again, Mr. Chairman.

It is quite indicative that the hearings of the committee on graying of the nation include reports on the scientific research, the development of which in gerontology requires special attention.

During about three decades of my activities as organizer of science on aging, and as director of a large institute of gerontology, conducted in close cooperation with the international organizations and some national institutes on aging, I have been able to realize that the development of basic research lags behind that of geriatric medicine.

The realization of the WHO recommendations within the project Health for All by 2000 is quite essential for preserving health and improving quality of life of the elderly. No less important are the concrete recommendations adopted recently by the U.N. World Assembly on Aging and reflected in Vienna International Plan of Action on Aging. They are based on the data that the gerontology could offer by now.

However, the science of today is developed very rapidly. Tremendous progress has been made recently in biology, physiology, biochemistry, and biophysics. Being a complex, synthetic science, gerontology is closely linked with their development.

Already now we may think about what we shall have after having understood the data of new investigations into the causes and mechanisms of aging conducted at various levels, from molecu-

lar and cellular to the whole organism of experimental animals and human beings.

First of all, we should realize that the study of mechanisms of aging, that is age-related changes which frequently make the background for the development of pathology, will be the basis of our knowledge about the causes of such diseases of old age as atherosclerosis, arterial hypertension, cancer, late diabetes, et cetera.

We learn more and more about possibilities for life prolongation in experimental laboratory animals. Further development of basic research in biology of aging may open new horizons in the problem of human specific lifespan prolongation in the problem of influencing the genetic apparatus which conditions the program of ascending and descending development of the human being.

The results of basic research in biology and medicine of aging are closely linked with the problem of psychology and social gerontology, with the identification of the most rational lifestyle of man in an individual aspect.

The structure of the Institute of Gerontology in Kiev had been developed with due regard to these considerations. Basic research in biology and medicine here are closely linked with the problems of psychology and social gerontology and geriatric hygiene. It should be emphasized that among very few institutions of the world engaged in a wide-scale basic research on aging, the Institute of Gerontology in Kiev and the Gerontology Research Center in Baltimore have much in common as far as their tasks are concerned. The activities of the center are well known in Kiev. To our greatest regret, the plan of cooperative work of the two centers developed in 1979 was not realized.

Still, the solution of many major problems of gerontology requires joint concerted efforts of large research teams at the international level. In many aspects of the problem they should be differentiated, depending on the geographic and national peculiarities. At present the Kiev Institute of Gerontology is conducting successfully joint research with some gerontological centers of countries of Eastern Europe, especially with the Gerontology Center of Semmeweis Medical School, headed by Prof. Edit Beregi; with Sweden, Great Britain in the field of postgraduate training of medical staff, and other countries.

As the WHO Collaboration Center, the institute maintains close ties with the WHO regional office for Europe as far as medical and social aspects of gerontology are concerned. More regular become the contacts with the aging unit of the U.N. Center for Social Development and Humanitarian Affairs. Later in September the institute will host the U.N. Interregional Seminar on Aging designed to help the developing countries to implement the Vienna International Plan of Action on Aging.

The solution of problems of social gerontology, the search for most adequate forms of organization of medical and social services for the elderly require scientific, including extensive epidemiological investigations. Today the committee listens to the reports of representatives of various countries with different structures of their societies. The tasks which they face as far as gerontology is concerned are much alike. However, the ways of their solution are different.

As in most socialist countries of Eastern Europe, in the U.S.S.R. the retirement age is quite low, being 60 years for men and 55 for women. This age, however, is not the stage, upon reaching which the working person should stop his or her professional activities. This merely implies a recognition of the contribution made by him or her to the development of national economy, as well as right for a partial compensation of this contribution through payment of a pension.

On reaching the retirement age, the person has the guaranteed right to leave his job and retire, or to continue his professional activity within full or limited volume.

The long-term observations have shown a three-sided interest in continuous employment of the people of the retirement age:

(1) The State economy is interested in it as the pensioner is, as a rule, a man who has accumulated a rich professional and life experience. To keep the people of the pensionable age in labor force, the State in its respective legislation on employment of pensioners has endorsed the right to a majority of working pensioners—about 90 percent—to receive wages together with the pension.

(2) Continuation of working activity within capacity is a powerful factor of maintenance of the pensioner's health, interest to life, prestige in the family, et cetera.

(3) Health protection and social security bodies have a considerable interest in these questions as the pensioners engaged in work are less ailing and need a lesser amount of care.

Maintenance of a sufficient income—the pension makes, as a rule, no less than 50 to 70 percent of the wage that the person got in the years of his employment—accessible and free medical services, housing provision, and respect among the people—special medal for labour veteran—are the major factors provided for the elderly and aged persons in the U.S.S.R. and making each of them be sure in their future.

As regards to the organization of medical and social aid for the elderly and the deployment of geriatric services in the U.S.S.R., there are naturally many problems which are to be solved in the near future. A positive solution is supported by the constant increase of the share of the budget allocated by State for Social Security and public health, as well as increasing attention of the State to the recommendation of the leading research institute of gerontology and geriatrics in this country.

The world is witnessing the inevitable processes of population aging that facilitates elaboration of respective measures at various levels of science and practice. Many of those present here have devoted years, decades of their lives to the development of both theoretical and practical aspects of gerontology. Let us hope that the results of our activities will be fruitful.

Already now, however, there is a number of powerful factors capable of altering the possible results of our efforts. The United Nations World Assembly on Aging in 1982 was a remarkable event in the development of world gerontology. Of special value in this view is the addition to section II of the plan of action of the adopted paragraph that reads, and I quote:

Various problems of older people can find their real solution under conditions of peace, security, a halt to the arms race, and a rechanneling of resources spent for military purposes to the needs of economic and social development.

I am convinced that fight for active longevity of the people and fight for peace are equivalent notions. Peace and longevity are the greatest treasures that we can leave as inheritance to our children, grandchildren, and coming generations.

Thank you very much.

Senator GLENN. Thank you, Doctor, very much.

I have been joined here at the table by Dr. T. Franklin Williams who is Director of the National Institute of Aging in Washington.

Doctor, we are very glad, we are honored to have you here with us today, and I know that you will have a more lengthy statement to make later on.

Once again, as I said this morning, on this particular subject of aging, I feel again a little bit like costume jewelry at Tiffany's with two directors of the National Institute of Aging sitting here and me conducting a hearing on aging between these two. But I am honored to be here with them and to be participating today.

Our next participant is Dr. Kazutomo Imahori of Japan. Dr. Imahori serves as the director of the Tokyo Metropolitan Institute of Gerontology. He will tell us more about aging research being conducted in Japan. Dr. Imahori graduated from the University of Tokyo and was engaged in scientific research and teaching at the University of Tokyo for 37 years before—and I put it in quotes—before "retiring" from the university and assuming the directorship of the Institute of Gerontology. So he didn't stop, he just went in a different direction.

I would add one other thing, I know from previous conversations today, he is very nervous about his English. So let's make him particularly welcome today.

STATEMENT OF KAZUTOMO IMAHORI, Ph.D., DIRECTOR, TOKYO METROPOLITAN INSTITUTE OF GERONTOLOGY, JAPAN

Dr. IMAHORI. Professor Butler, Professor Williams, ladies and gentlemen, according to our very recent report in the paper we have heard that our life expectancy in Japan is for ladies over 80 already, and 75 for males. So we are now coming to the No. 1 in the world. And you may expect that I will draw out some secret from my pocket and show you what's the fact of which, you know, we achieve this kind of life expectancy. But against your expectation, I am sorry. I am just talking about frustration and also problems facing the research of gerontology in Japan.

In recent years both the relative and absolute numbers of the elderly have been increasing. This phenomenon is not only affecting Japan, but other countries as well, and has become a problem of serious dimensions. The special problems created by an increasing number of the elderly are indeed diverse: medical treatment, health care, income security, employment, housing and environment, education, the quality of life, and et cetera.

Accordingly, studies aimed at solutions to these problems of the elderly are scattered among a large number of disciplines. Thus, the science called gerontology puts the problem of aging as multi-

disciplinary rather than interdisciplinary because the research methodology used are quite different from discipline to discipline.

Nevertheless in terms of different research emphases of major academic societies in Japan, these wide-ranging studies can be reduced to two categories. First, there is research on the prevention of the degenerative changes in the process of aging. The first priority is given to biological and basic medical research that aims at identifying that cause of degeneration. This category includes such traditional disciplines as biology, physiology, pathology and so on, as well as the epidemiology to identify risk factors associated with aging. Researchers working in this field in Japan are mostly members of the Japan Society for Biomedical Gerontology.

The second category includes clinico-medical studies of the Japan Geriatric Society and sociological studies of Japanese Sociogerontological Association, for coping with the unavoidable problems of aging. In this category studies include those on the treatment of geriatric diseases, rehabilitation and nursing of geriatric patients, pension systems, social adjustment for elderly, and so on.

Integration of these disciplines is one of the major problems in the research on aging in Japan. In multidisciplinary science such as gerontology, there is a tendency to generate researchers who dabble in areas well beyond their formal training, while those studies in the discipline specific methodology are conducted in depth and have produced a number of noteworthy results. There are a number of issues which can be solved only through interdisciplinary cooperation. At present it may be quite difficult to integrate the two categories of research mentioned above. However, cooperation and/or coordination of disciplines in either category should be strongly emphasized.

The second problem is a shortage of researchers. As mentioned above, we can count three academy societies related to the study of aging; the Japan Society for Biomedical Gerontology, the Japan Geriatric Society, and Japanese Sociogerontological Association. The numbers of members of these three societies are 400, 4,000, and 500 respectively. Considering that a sizable number of practicians are members of the Geriatric Society I can say that the number of researchers engaged in basic gerontology or geriatrics are very small, less than 1 percent of those in cancer, for example.

I mentioned a while ago some work on aging is carried out within the framework of the traditional disciplines. However, no society in a traditional discipline has a branch or division of gerontology or geriatrics. Thus, the importance of research on the aging is unreasonably neglected by most Japanese scientists. This tendency can also be seen in medical education; only 8 out of a total of 79 medical schools have any formal chair for geriatrics.

The third problem is a shortage of a research money. The budget appropriated for research on aging by Japanese Government in fiscal 1985 was about 800 million yen, mainly (about 3.2 million U.S. dollars). This is only one-fortieth of the sum spent for research on cancer, or two-fifths of the annual budget of the annual budget of the Tokyo Metropolitan Institute of Gerontology, which is totally supported by Tokyo Metropolitan Government, but not by Japanese national government.

Moreover, the budget is mostly devoted to the research in category two, that is for geriatric and sociogerontological works, and very little to research in category one, which is the basic research on the prevention of the degenerative changes that accompany aging.

Problems also exist in the organization of research and researchers on aging. Although Tokyo Metropolitan Institute of Gerontology, which is the sole institute on aging in Japan, plays a major role as the center of the gerontological research, its activity is strictly limited because it is not run by national government and it has no extramural budget.

The last two problems are mostly due to the essential lack of real concern in the government for the problem of the elderly. Hopefully the Japanese Government will realize the importance of research on aging and will increase research money. Surely, this will result in an increase in the number of researchers and also additional studies on the aging.

I can give you one example. We are well funded by the Tokyo Metropolitan Government. Through the interdisciplinary cooperation I think in the very near future we would grasp a real key for solving Alzheimer's disease.

Thank you very much for your attention.

[The prepared statement of Dr. Imahori follows:]

PREPARED STATEMENT OF KAZUTOMO IMAHORI, PH.D.

1. RESEARCH ON THE PROBLEMS OF DEALING WITH AN AGING POPULATION

In recent years, both the relative and absolute numbers of the elderly have been increasing. This phenomenon is not only affecting Japan but most other countries as well, and has become a problem of serious dimensions. The special difficulties created by an ever increasing number of the elderly are indeed legion: medical treatment, health care, income security, employment, housing and environment, education, the quality of life, etc.

Accordingly, studies aimed at solutions to these problems of the elderly are scattered among a large number of disciplines. Nevertheless, these wide-ranging studies can be reduced to two major categories.

First, there is reasearch on the prevention of the degenerative changes that often accompany aging such as hardening of the arteries. For this purpose the first priority is given to biological and basic medical research that encompass studies in such traditional disciplines as biology, biochemistry, physiology, pathology and so on, as well as the epidemiological study to identify risk factors associated with aging.

The second category includes the clinico-medical and sociological studies for coping with the unavoidable problems of aging. Within this category one can enumerate a number of studies such as those on treatment of geriatric diseases, rehabilitation and nursing of geriatric patients, pension systems, social adjustment for the elderly, etc.

2. RESEARCH ON AGING IN JAPAN

Before explaining research on the problems of aging in Japan let me give you a bit of information on the present aging situation in this country.

As of 1983, the average life span of Japanese was 74.20 years for men and 79.78 for women, the highest average in the world. The population over 65 years old was thus 11,940,000, or 9.9% of the whole population. The aging of the Japanese population is countinuing at a high rate and it is predicted that 20% will be over 65 years by the 21st century.

Since this unique incidence of aged citizens is expected to bring about a great change in the socioeconomic conditions in the country, the government established the Section for Problems Dealing with the Elderly in the General Affairs Agency to try and cope with the problems of the elderly by coordinating the ministries and agencies concerned. Among the ministries and agencies which are conducting research on aging problems are the Science and Technology Agency, the Ministry of

Health and Welfare and the Ministry of Labor. The appropriation for research in fiscal 1985 was about 803 million yen (about 3⅕ million dollars U.S.).

The Science and Technology Agency has been implementing a five-year plan since 1983 on the "Study on Development of Science and Technology for Dealing with the Aging Society" with the cooperation of various research institutions including the Tokyo Metropolitan Institute of Gerontology with an appropriation of 240 million yen. This study has three major components—clarification of the factors which cause aging, development of health care techniques for the elderly, and research on techniques to improve the immediate environment of the elderly. In addition, the Science Technology Agency has a 10 year Life Science Project which began in 1977 with an annual budget of 55 million yen devoted to the concerns of aging.

The 53 million yen budget of the Ministry of Health and Welfare is largely devoted to research on the mental problems of the elderly. As for the future, it is said that the ministry has no plan to establish a National Institute on Aging but intends to reorganize the National Institute of Nutrition and set up a Division of Aging there.

The Ministry of Labor is conducting three studies on the employment of the elderly: (1) research on measures for promoting opportunities for employment for the elderly ranging from 60 to 65 and on related issues, with an appropriation of 437 million yen, (2) research and surveys on development of abilities of elderly employees, with an appropriation of 10 million yen, and (3) research on development of microelectronic equipment to expand the range of jobs and to secure better working conditions for the elderly with an appropriation of 8 million yen.

The above makes it clear that there is little real concern for the problems of the elderly in the government, if reality is measured in money. Worse, there is scant expectation of improvement in the immediate future. The paltry governmental budget of about 800 million yen for this purpose is only one-fourtieth of the sum spent for research on cancer in Japan, two-fifth of the budget of the Tokyo Metropolitan Institute of Gerontology and one-thirtieth of the fund for research at the National Institute on Aging in the United States. It is especially striking that the allocation by the Science and Technology Agency for basic research on aging plus that paid by the Ministry of Health and Welfare for supporting research on geriatric diseases are so minuscule.

However, in the budget of the Ministry of Health and Welfare there are studies of diseases such as those of the circulatory and the central nervous system that should be coterminous with some geriatric problems. Accordingly, the above-mentioned amount of 53 million yen might be an underestimate.

From the point of view of medical education a sad commentary is that only eight out of total 79 medical schools have any formal courses on geriatrics. The same unfortunate situation obtains for the number of gerontologists as indicated by membership in academic societies: Japan Society for Biomedical Gerontology about 400, Japan Geriatrics Society around 4,000, Japanese Sociogerontological Association about 500, a little less than 5,000 in all. This is much less than the number of researchers on cancer, for example. It is especially noticeable that there are so few people engaged in basic research on aging, a mere 4% of the membership of the Japanese Biochemical Society alone (some 10 thousand members). Moreover, the Japanese Biochemical Society, Physiological Society and Pathological Society have no divisions of gerontology.

Under these circumstances pertaining to research on the problems of the elderly in Japan, the Tokyo Methropolitan Institute of Gerontology is not merely a sole institute devoted to the study of aging in this country but it plays a leading role as the center of gerontology research. This can be easily understood from the fact that both Japan Society for Biomedical Gerontology and Japanese Sociogerontological Association have their head quarters, in the Institute.

3. RESEARCH ACTIVITIES IN THE TOKYO METROPOLITAN INSTITUTE OF GERONTOLOGY

The Institute was established in 1972 by the Tokyo Metropolitan Government to promote comprehensive scientific research on aging and the problems of the elderly in close collaboration with the Tokyo Metropolitan Geriatric Hospital founded on the same site. In 1981, the Institute was reorganized into a foundation to cope more effectively with various problems surrounding the elderly but is funded as before by grants from the Tokyo Metropolitan Government.

This year (fiscal 1985) the Institute employs 187 people and has a budget of about 22,000 million yen (about 88 million dollars U.S.). The organization of this institute is shown in the attached table. Research activities are divided into two major categories, the Ordinary Research Division and Project Research Division. Gerontology

is seen as multidisciplinary rather than interdisciplinary because the research methodologies used are quite different from discipline to discipline and there is no methodological unity. For example, all lectures on biochemistry might be given by a single instructor, but one can hardly imagine all lectures on gerontology delivered by one instructor. In such a multidisciplinary science there is a tendency to generate dilettante researchers who dabble in areas well beyond their formal training. In order to prevent this tendency, the Ordinary Research Division of the Institute has an organization close to that of departments and faculties in traditional universities.

In each laboratory of the Ordinary Research Division, rigorously defined in-depth studies are conducted using the unique methodologies of the various specialists. Thus, while the tendency to foster dilettantism is avoided, collaboration among different disciplines may become weak. It is the Project Research Division that is concerned with this weak point. In this division, subjects suitable for interdisciplinary cooperation are selected, especially those directly related to newly growing problems in modern society. For example, a wide-range, cooperative study on "dementia in old age" is now under way. Pathologists, physiologists and biochemists are united in an effort to approach to the causes of dementia from the analysis of the brain. At the same time, epidemiological studies are contributing results which are used by psychiatrists and neuropsychologists to determine criteria for the diagnosis of dementia. In addition, research on the home nursing of demented patients and on their social adjustment is being conducted in cooperation with all the studies mentioned above.

In the Ordinary Research Division, there have been a number of studies with noteworthy results. These include a pathological study of centenarians, a 10 year epidemiological survey of the elderly in a rural city, and a study of the incidence of dementia in old age. Ordinary research also includes studies commissioned by the Science and Technology Agency and central government offices. In addition, the Institute is independently raising aged animals for use in research.

The Project Research Division often obtains the cooperation of people outside of the Insitute. In general, the period of research in this category is three years, but it can be extended up to five years in some cases. The Project Research subjects now under way are (1) aging of the central nervous system, (2) aging and immunity, (3) aging and pharmacodynamics, (4) aging of the blood vessels, (5) aging of the bones, (6) dementia in old age, (7) the study on the socio-medical background of aging, and (8) the raising of model animals for aging research. Some of these projects have already produced important results. For example, the study "Aging and Pharmacodynamics" demonstrated that old people are relatively sensitive to tranquilizers but are little affected by anticonvulsants. Noteworthy results are also being obtained in search for the causes of Alzheimer's disease.

In addition to research, the Institute emphasizes the dissemination of our findings to the general public. For example, it has a half day public colloquium on the problems of the elderly in a large hall in Tokyo twice a year.

Last September, the Institute made an agreement with the United States National Institute on Aging to mutually cooperate on research by exchanging researchers, among other things. As the problems of the elderly are already common to all industrialized societies and constitute a situation which can only become worse, it was indeed mandatory that such an agreement be concluded between us.

Our institute will make every effort to find solutions to and/or ameliorate the problems of the elderly by working in close cooperation with the institutions in the United States and throughout the world.

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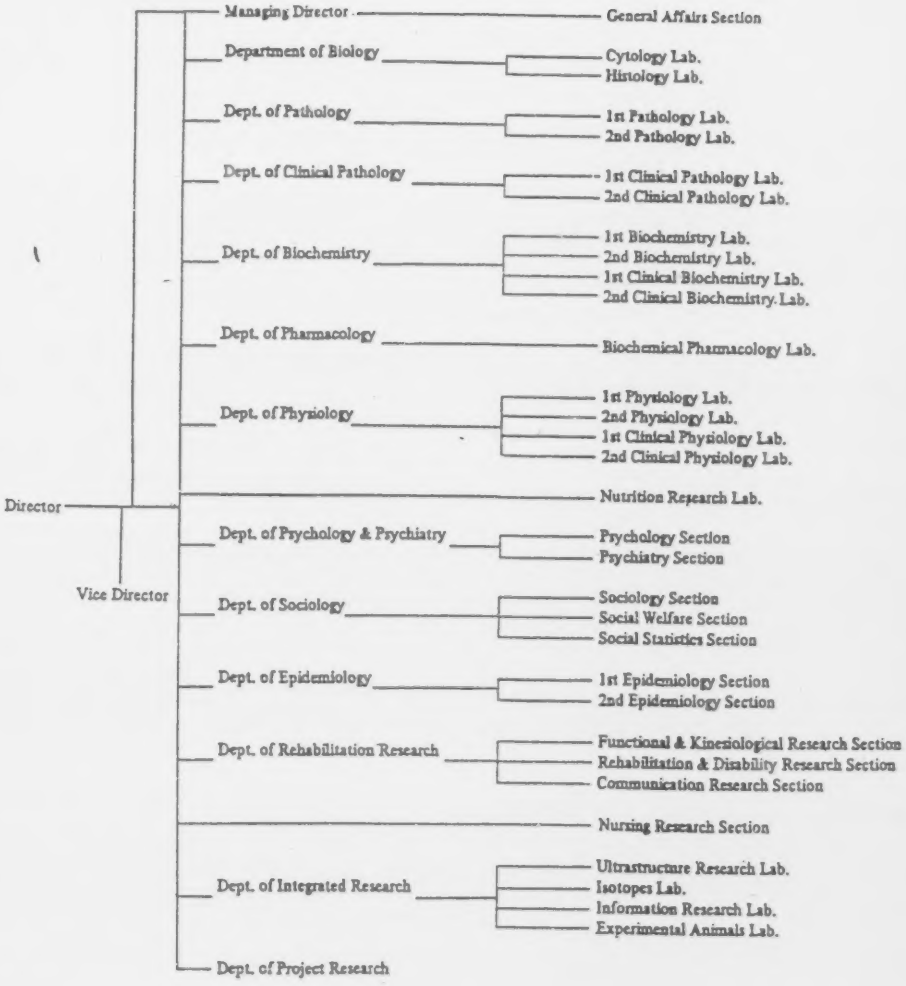
ORGANIZATION OF
TOKYO METROPOLITAN
INSTITUTE OF GERONTOLOGY



Senator GLENN. Thank you very much.

One announcement I wanted to make before we go ahead with our questioning this afternoon—the chairman of our committee is Senator John Heinz of Pennsylvania, and John wanted me to express his regret that he could not be here this afternoon. John is also a member of the Finance Committee. He is involved in a hearing in Washington this afternoon on some problems on Medicare, on a bill that we cosponsored which came out of an Aging Committee hearing in Washington to ensure that under the Medicare and Medicaid programs, doctors who lose their licenses in one State can't just move to another State and continue to practice. You may have seen some publicity about this recently. We want to set up a national reporting system, and John is working on it in Washington while I am enjoying the hospitality of New York today. So we appreciate the fact that he could not be with us today and he sends his regrets.

Terri Kay Parker, who is on the staff of the Aging Committee is here representing Senator Heinz, the chairman of the committee. Terri, would you stand up please. She does a tremendous amount of work in this area.

Come on down and join us here on the podium, if you would like, or that might be a more comfortable seat right there.

We are glad to have Terri here today, and we will be making this committee record available, of course, to everyone back in Washingtqn. We will make sure that everyone has the benefit of what we have been able to experience here today.

Dr. Chebotarev, the Soviet Union is a vast country, and you have many nationalities and many differences within the Soviet Union. Too often in our own country we speak of the Soviet people as the Russians, but the Russians are literally just a small part of the overall Soviet Union. I wonder, out of all of that diversity of people that you have within your country, whether you see major differences in longevity from one part of the Soviet Union to another, east-west, north-south, Ukraine to wherever, because you do have a lot of different nationalities and living conditions represented. Do you have particular differences you can see in longevity and have you pinned down or have you ascertained reasons why you think those differences in longevity occur?

Dr. CHEBOTAREV. I must say that we think so. Every man has a program. This program can be for a short time or for a long time. You can do all to live long, but you will live short. If you have short program you will always go to nutrition and to physical, but in 65, 70, you will be bad. It can be so if you have long program you can smoke and drink and at 90 you will not be bad.

Senator GLENN. Maybe we should have a party.

Dr. CHEBOTAREV. In our country we have a different—now we have 12 and 5 [sic] percent of people who is 60 and more. In different republic it is more not so. In Republic Baltica. In Astonia, more. In our east there are not so more people 60 and more. This is so for many children or few children. In the west the family have not so more children. In our coast [sic] more children. So this percent is so different.

I think that during last year this difference is not so big. Also smaller and smaller. Our long live people are not only on Khar'-

kov, they are in different part of republic, but most in Georgia, Azerbaidzhani. I think that this is heredity; this is nutrition; this is our whiskey. When I think about long live people, it is very good what says Professor Kibchezzet, because he worked in his direction. He is from Georgian and he worked in his direction.

Thank you.

AUDIENCE PARTICIPANT [from Russian group]. You know in Georgia we have about 2,000 people which are more than 100 each. This is now for village. This is very easy to start with. Many say "Why do these people live so long?" I think it is genetic, first. Second, it is physical.

Senator GLENN. Excuse me, did you say "genetic"?

SAME AUDIENCE PARTICIPANT. Yes, genetic, of course. Genetic with this problem is very old. You see now, you know, 500 years we study these people which lives long. But the first 100 years or so it was very primative style. But now we study these people not as others, not as cancer disease, you see. Why is reason? Because in many population you die early from stroke or cancer, you see. But these people, nothing. This is why I think it is genetic, that is true.

Second, there is nutrition, of course. These people exercise; they smoke [sic]; no go by car; no sitting long time in vacation; and no smoke cigarette in so many miles [sic]. And now we have about 90,000 which are 90 years old, 90 and older. And 2,000 over 100 in Georgia.

Senator GLENN. Since you are a Georgian I won't ask you your age now, but you have a long time to look forward to because you are from Georgia.

Some of our American advertisers, you may recall, a few years ago had the yogurt ads on TV in which the 85-year-old man introduced his 110-year-old mother, and based it all on the fact that the people in Georgia, in the Soviet Union, ate a lot of yogurt, or tried to make it sound that way anyway. But from what I understand of what you said, you have never been able to pin down any one reason, the water or chemicals or climate or fruit or whatever. You attribute the 100-year-old phenomena in Georgia more on genetics. Very interesting.

Are there studies in that area still continuing?

SAME AUDIENCE PARTICIPANT. Yes; there are studies.

Senator GLENN. Let me ask just a couple of questions here.

SAME AUDIENCE PARTICIPANT. I would say for the last 20 years the same people achieve the same age.

Senator GLENN. For 20 years, yes.

Dr. Beregi, in your lengthy statement I noted a sentence in there that indicated that for smokers the mineral content of the bones is actually less; is that correct?

Dr. BEREGI. That is correct and there are not only our data, but in another institute the same was found. So it is dangerous to smoke in this respect too.

Senator GLENN. And that would be particularly the elderly who smoke.

Dr. BEREGI. They have more often osteoporosis.

Senator GLENN. I think Dr. Svanborg's data is very similar and the U.S. data is very similar.

Dr. WILLIAMS. There are several supporting studies around the world.

Senator GLENN. Let me just ask one other question here.

Dr. Imahori, with Japan going into the lead on life expectancy, do you have any hints for the rest of us? Have you been able to pin this down to any particular reason why you think this is so?

Dr. IMAHORI. It is very hard to answer.

There are two reasons. I have to mention that we have a very big job on life expectancy, longevity after the war. By that time, of course, the use of antibiotics to prevent infectious disease was very effective to prolong the life expectancy. However, this is nothing to do with the true reason. And if so, I think one thing which controls the Japanese longevity must be genetics. And I should add one secret—not secret, but I think it is a hidden result that in United States. In Hawaii, you have Japanese and their average life is 3 years longer than the average Japanese. So, besides gnetics, environmental factor should be added. Especially Japanese eat much more fish than Americans. This might be very important too—I think in genetics and environmental factors are now providing us with this kind of activity I think.

Senator GLENN. That is very interesting. I hadn't heard that figure before, but if I understood you correctly it was that the Japanese American in Hawaii, their life expectancy is 3 years more than the average Americans in Hawaii; is that correct?

Dr. IMAHORI. No, than Japanese.

Senator GLENN. OK.

Dr. BUTLER. Get these two countries together, you never know what will happen.

Senator GLENN. Are we running collaborative research programs together? Dr. Williams, why don't you go into this because I would like to know a little bit more about some of those if we are—some of this sharing of information back and forth. Do you want to take over the questioning.

Dr. WILLIAMS. This is exactly the question I wanted to raise with the three panelists. I might comment first that the National Institute on Aging does have a collaborative agreement with the Tokyo Metropolitan Institute on Gerontology, and we do have some shared relationships and are working for more. I would like to ask each of the panel members in turn what specific ways do you see that we might have more collaborative research between our country and yours, as well as between various countries? Perhaps, we could start with Dr. Beregi. What do you think might be done that would be more advantageous in collaborative research?

Dr. BEREGI. I think today the most important collaborative research topic would be to study lifestyle and environmental factors on biological aging and diseases in the aged because they are different in different countries.

It would be interesting to follow up in longitudinal study the influence of environmental factors, risk factors, lifestyle on age related biological changes and on diseases and to compare these data in different countries. The most important problems in old age are the frequent occurrence of chronic diseases. I think that preventive measures can be carried out only after clarifying the effect of the mentioned factors.

Dr. WILLIAMS. You would say then that comparative studies between nations, between cultural groups, would be valuable in lifestyles, in environmental factors, differences in disease prevalences.

Dr. Chebotarev, will you comment from your perspective about what we might do to have more collaborative research?

Dr. CHEBOTAREV. Yes, I know some years ago we spoke about this. And we have three teams which can be collaborated together with our institutes. These are experimental teams. This is immunology, this is cells, this is hormonal regulation, this is physiology, this is something from aging research in cardiovascular diseases. Such things can be together, and together with Professor Beregi we have immunology. Immunology in old men, in experimental, and that can be in old men also.

Dr. WILLIAMS. So you suggest that we could try to set up teams around specific resea.ch focuses, that we could try to develop shared research this way.

Let me ask Dr. Imahori if he has comments about steps we could take to promote more shared and valuable research between nations.

Dr. IMAHORI. Of course there is two suggestions, I think: One, we have to select the topics which can be solved only through the coordination or cooperation between several nations. We have done with Swedish and we got multiple factor for determining aging. Also, another example is Hawaii. The second one must be a very important work which must be acclerated by international cooperation. For example, say, immunology. As aging proceeds vou will learn the immune capacity decreases and, on the other hand, autoimmune increases which triggers some geriatric diseases.

I think, ladies and gentlemen, the problems are two; and I repeat, the first one is the one which can be carried out only through international cooperation. And the second one is a very urgent one.

Dr. WILLIAMS. Thank you.

If I could just ask one more question, Senator Glenn? I would be interested in what each of you think about the prospects of exchange of scientists between our countries. Your scientists would come to work in our laboratories to learn and teach for 1 year or 2 or 3; and vice versa; and scientists from the United States would go to your laboratories to learn. For example, U.S. scientists might go to Georgia and find out how people live so long.

Do any of you have comments about the possibilities of exchange of scientists?

Dr. BEREGI. I think the exchange of scientists is very important. It is possible for your coworker to come in our institute and vice versa. It depends on funds. If we can get the funding there is no problem at all.

Senator GLENN. We have a problem in that direction too.

Dr. WILLIAMS. Dr. Chebotarev. I want to say that in time we can write you different proposition about this work of two institutes, and this big sum, one, two or three teams, can do one part in your country, one part in our country. It can be different part of whatever team because gerontology is a very, very big science.

Dr. Imahori, any comments about exchange of scientists?

Dr. IMAHORI. Of course, it is very good to exchange scientists, but I think there is some conditions. First, the exchange must stand on equal footing, which is even more difficult in Japan than in United States. And you are training our scientists and if there is nothing we can do for U.S. scientists then there is no exchange. So it must be equal footing, OK. And also this must be a good group for this kind of exchange; this is very important. Third, we need money for it. If we can find money it's very easy. So how we can get money? So we have to have some proofs that exchange is beneficial for our country, too. Then, I think, you are going to lead to having money for this kind of an exchange program. Thank you.

Senator GLENN. I wanted to ask one thing. I don't want to make this into a dramatic negotiating session or anything like that, but I just wondered, Dr. Chebotarev, would you welcome a proposal from the United States for such shared information back and forth that we both could consider?

Dr. CHEBOTAREV. I think it is possible such exchange. I think more that in this way we shall be in conference in experimental gerontology and if some two, three, four your coworker can come to this conference, we shall be very glad. You will be our guests. We cannot pay transportation expenses.

Dr. WILLIAMS. Excellent.

Dr. BUTLER. I always like to be action oriented and I was quite taken by John Grimley Evans' point this morning that if from the scientists themselves a protocol is derived with a sense, as I would understand you, of priorities and interests, which could then be taken to governments, that may be a very healthy approach. And I really think that all three of you have said the same thing.

So I wonder if maybe one of the fine contributions of this hearing might be not something that the U.S. Senate has to do, but something that perhaps all of us who are deeply interested in gerontology should do from all countries, and that is to try to come to grips, maybe over these next several days at the International Congress, in the beginnings of such a protocol for movement upward.

Along those lines, and just as a matter of an exercise at the moment, I wonder if the three of you might say a few words about how you go about the strategy of selecting priorities. Now, Dr. Beregi in her paper was describing some of the technical aspects of free radical theory, for example. Both of the other of you spoke about the fundamentals of genetic mechanisms and programs. But how do you go about systematically deciding what you are going to study in each of your three institutes. I know you could take several hours to do that, but just as a highlight, what is your approach?

Dr. BEREGI. You can see in my statement that first of all we studied age-related biological changes and diseases in animals because before we try to influence these changes we must clarify them.

Dr. BUTLER. But how did you decide to do age-related changes in animals? What I am saying is how do you decide this? All of us have constraint resources. We don't have all the resources we might wish. So how do you come to a decision as to what you are going to study?

Dr. BEREGI. We think the most important is to postpone age related biological changes and diseases in the aged. Therefore we ex-

amined several parameters and followed up longitudinally in experimental animals. We examined: cold adaptation, protein turnover, life span, body and organ weight, organ's indices, mitochondrial changes, frequency of diseases. After collecting these data in a large number of animals we could state that perhaps age-related mitochondrial changes developed on the lymphocytes after 16 months, or hepatocellular carcinoma after 15 months and so on. When we got all the mentioned data we could take some drugs or chemicals to investigate how they influence the mentioned parameters. These investigations are carried out in CBA/Ca mice. This was our strategy in the research work.

Dr. BUTLER. Dr. Imahori, how does the Tokyo Metropolitan Institute, how do you establish your strategy?

Dr. IMAHORI. Already you know that we do have faculties which are mostly traditional discipline oriented. And I think that researches starting on such traditional discipline is very important. But especially to meet the desire of the society, we have to select very urgent problems which must be solved. These researchers are interdisciplinary and need cooperation of several laboratories. And we have a most important policy—is we have certainly afforded much money for these topics.

Dr. BUTLER. Dr. Chebotarev, do you want to give your priorities?

Dr. CHEBOTAREV. Do you know I think there are not any system. We have program in our institute and we have external program. And now program is prolongation of life. This program worked more than 60 institutes. But budget of this work is not from our institute, from the institute which work. So every 5 years they contract a program. This will conference. This year will be conference. And then we will be planned on the next 5 years. So we work not only in our institute, but it is many other institutes. Then there is institute for big academy, I think, Lenin Institute for Academy from our republic, from Georgia, from Ukraine, et cetera, and some institutes of different scientific institutes in medicine. So in whole there are 60 institutes which work on program. Then we have scientific problem. Scientific problem is more. Scientific problem, all who work in gerontology. This is near 100 institutes. There is in Georgia and all others together. So we have scientific program and concrete program for prolongation of life.

Senator GLENN. Thank you very much. I really appreciate this and I am just sorry we can't go all day on each one of these panels because we could do that with our discussion period. So I do appreciate very much your being with us today and thank you for your testimony here and for being willing to answer questions.

To wind up our hearing today and to give us an American perspective we are fortunate to have with us Dr. Frank Williams who is director of the National Institute on Aging in Washington. Dr. Williams is a native of North Carolina. He graduated from Harvard Medical School, and before coming to the National Institute on Aging in 1983, he served as a professor of medicine and as codirector of the Center on Aging at the University of Rochester Medical Center. Among Dr. Williams' extensive list of publications are issues of clinical care of the geriatric patient; long term care of chronic illness, diabetes; research and health services for the elderly. And he recently received the American Journal of Nursing

Book of the Year Award for his publication "Rehabilitation in the Aging," judged the most outstanding title published in the field of geriatrics.

I have valued Dr. Williams' assistance during his tenure at NIA and we share a common interest in research efforts and geriatric education and training. Dr. Williams will discuss aging research in the United States and respond to points made by our earlier participants. And, Frank, we appreciate very much your taking time to be with us today and look forward to hearing what you have to say.

STATEMENT OF DR. T. FRANKLIN WILLIAMS, DIRECTOR, NATIONAL INSTITUTE ON AGING, NIH, BETHESDA, MD

Dr. WILLIAMS. Thank you very much, Senator Glenn; it is an honor to be here.

I'll start by saying that our Institute, and I am sure all of us here, are very grateful to you and to Dr. Butler for organizing these hearings that have brought together such an impressive group of world leaders on aging and have helped write a record for our Nation as well as others to pay attention to. It is truly a great treat to have such a session as this.

I might also add that I know our Institute and, I am sure, many others are very grateful to the leadership that your Senate Special Committee on Aging provides in highlighting the issues of aging for our country.

It is clear from the other presentations in this hearing that many of the problems and challenges encountered in the United States are universal in scope. We have heard both encouraging and sobering news from the demographic studies in Sweden, and of the needs and responses, such as the innovative services in the United Kingdom, France, and the Netherlands. Emphasis has been placed on experimental services and government support, as well as self-care. The family's role and the potential problems have been emphasized by our speakers from Ghana and from the People's Republic of China. The present and potential functions of the regional offices of WHO, as well as the WHO Global Program on Aging and of the United Nations have been stressed. In particular an appeal has been addressed to all of us for a more specific commitment by the United Nations in this field. In my judgment many of the answers to all of these problems, as well as these challenges, must and will come from research. Panel members before me have also emphasized the importance of research, and we have heard examples in particular from Hungary, from the Soviet Union, and from Japan. I would like to take a few moments to discuss the priorities in research and training that the National Institute on Aging of the National Institutes of Health have evolved to meet the challenges of an aging society.

In developing our priorities we have drawn heavily on expert advice from professionals worldwide, as well as from our own staff. The first of our priorities is the need to understand the normal aging process, a need that has also been addressed by other speakers here.

At the NIA Gerontological Research Center, the Baltimore Longitudinal Study on Aging was initiated in 1958 to observe normal volunteer subjects over a number of years. The multidisciplinary approach—which includes physical, social and psychological assessment—offers unique insights. The ultimate goal is to distinguish between aging as a normal process versus aging as a stage of life filled with a wide range of diseases. Two major overall conclusions have emerged from these and other similar studies: First of all, there are far fewer changes in normal functions with aging than was previously thought. That is the functions of the heart, brain, kidney, and other organs may be well maintained into very late life in the absence of disease. Second, we have found that individual variation in the functions of human organ systems is often much greater than any general age-related changes. Thus, in applying our findings to clinical problems it is essential to assess carefully the specific characteristics of the individual patient.

At the same time we have learned that there are genetic and cellular changes with aging. Another of our high priorities is to apply to this field the burgeoning knowledge of molecular genetics. New techniques have already been successfully applied to the exploration of genes involved in normal and abnormal cell growth. In addition, we aim to use these techniques to understand and perhaps influence the roll of genetics in Alzheimer's disease and other age-related diseases.

Alzheimer's disease and the dementias of aging constitute another major priority. Between 5 and 10 percent of the 27 million Americans over the age of 65 suffer from serious cognitive defects. More than half of these suffer from Alzheimer's disease. The cost of caring for some 2 million Alzheimer's disease victims in the United States is estimated between $25 to $35 billion a year, and is projected to reach perhaps as much as $150 billion a year in only 15 years, unless we can find an answer to treating or curing this disease. NIA now invests about $25 million a year for research in this area, or approximately one-tenth of 1 percent of the cost of the disease. Other institutes and other government agencies invest about that much more. Progress in understanding this tragic condition is proceeding very rapidly. It is most gratifying to note that a network of international collaboration is emerging in this field. At this international congress we have already held a day-long session to discuss international standards for diagnosis of Alzheimer's disease. Our own Nation's report on Alzheimer's disease, by the task force appointed by the Secretary of Health and Human Services, specifically recommends international collaborative research on this condition, and our Institute is very eager to participate in such efforts.

Another area of emphasis is that of the oldest old. Professor Svanborg referred to this population, of people aged 85 years and older, earlier today. It is vital that we learn more about this group, which is projected to reach 5½ million people in the United States just 15 years from now. We need reliable forecasts and understandings of all types on this condition.

Another priority area encompasses research on diseases and disabilities which commonly plague older people, in particular those to which the medical community has given little previous atten-

tion. These include the functional disabilities of incontinence, falls, hip fractures, osteoarthritis, and other disabilities which curtail the independence of older individuals and account for a large percentage of the admissions to nursing homes, in addition to dementia. Research findings already are pointing to steps that can be taken for their treatment and prevention.

The focus on issues related to maintenance of health is another priority. Our research base on good health maintenance practices for older people is limited, particularly in the important areas of nutrition and exercise. More studies are also needed to establish the effects on health and functioning of social phenomena such as changing family relationships, retirement, and bereavement, again as we heard in some of the other reports today.

Through support for research and demonstration programs other offices in the Department of Health and Human Services are making efforts to improve the delivery of care to older people in cost effective ways as well. What is needed in addition to research is that final priority of our institute, the preparation of health care professionals for the 21st century. At that time, 25 percent of the American population will be over the age of 65 and the majority of all health and social services will be utilized by this age group. Current estimates indicate that we have no more than 10 percent of the needed personnel for teaching and research in this field, let alone providing the services. Training and career development of researchers and teachers of health and human services professionals must at least double of triple to reach our goal by the year 2,000. We desperately need more teachers, researchers, and academic leaders to help provide training and teaching for the future needs of older people.

Obviously the potential for research and training on aging is limitless because virtually every aspect of life has relevance to older people and the aging process. I have tried to outline some priorities where I think real progress can be made. One cannot do everything at once. No one person, no one institute, no one group, no one country can do everything. Our institute is eager to continue and, where possible and promising, to increase its collaboration with scientists in other nations responding to these challenges. I am confident in the progress already made and I am hopeful that the future of older people everywhere will benefit as we work toward our goal.

Thank you, Senator.

[The prepared statement of Dr. Williams follows:]

PREPARED STATEMENT OF DR. T. FRANKLIN WILLIAMS

Senator Glenn, Colleagues, and Distinguished Guests: Thank you for inviting me to participate in this public hearing and to discuss with you aspects of aging in the United States as well as in other parts of the world. It is clear from the other presentations in this hearing that many of the problems and challenges encountered in the United States are universal in scope. In my judgment many of the answers to these problems must and will come from research. I would like to discuss briefly the priorities in research and training that the National Institute on Aging (NIA) has evolved to meet the challenges of an aging society. In developing these priorities we have drawn heavily on expert advice from professionals worldwide as well as from our own staff.

The first priority I wish to mention is the need to understand the normal aging process. At NIA's Gerontological Research Center, the Baltimore Longitudinal

Study on Aging was initiated in 1958 to observe the same normal, volunteer subjects over a number of years. The multidisciplinary approach which includes physical, social and psychological assessment offers unique insights. The ultimate goal is to distinguish between aging as a normal process versus aging as a stage of life filled with a wide range of disease. Two major overall conclusions have emerged from these and other similar studies: first, that there are far fewer changes with normal aging than previously thought; that is, the functions of the heart, brain, kidney, and other organs may be well maintained into very late in life in the absence of disease. Second, we have found that individual variation in the functions of human organ systems is often much greater than any general age-related trends. Thus, in applying these findings to clinical problems it is essential to assess carefully the specific characteristics of the individual patient.

At the same time, we have learned that there are genetic and cellular changes with aging. Another priority is to apply to this field the burgeoning knowledge of molecular genetics. New techniques have already been successfully applied to the exploration of genes involved in normal and abnormall cell growth. In addition we aim to use these techniques to understand and perhaps influence the role of genetics in Alzheimer disease and other age related diseases.

Alzheimer disease and the dementias of aging constitute a major priority. Between five and ten percent of the 27 million Americans over age 65 suffer from serious cognitive deficits; more than half of these suffer from Alzheimer disease. The cost of caring for some two million Alzheimer victims in the United States is estimated at 25 to 35 billion dollars a year and is projected to reach 150 billion dollars by the year 2000. NIA has earmarked 25 million dollars for research in this area, or about a quarter of our total research budget. Other institutes in the NIH and the Public Health Service are also investing an additional 23 million dollars in such research. Progress on understanding this tragic condition is proceeding rapidly. It is most gratifying to note that a network of international collaboration is emerging in the field of Alzheimer disease. The International Congress of Gerontology has brought together many international experts who will be meeting to discuss international standards for diagnosis.

Another area of emphasis if the oldest old—people 85 years of age and older. There are approximately 2½ million people over 85 in the United States today and their numbers are growing three times faster than the over-65 population as a whole. It is vital that we learn more about this group—projected to reach 5.5 million by the year 2000, just 15 years from now. Reliable forecasts are needed as to the size, nature, and needs of the oldest old population in order for us to be adquately prepared for the future needs of society.

Another priority area encompass research on the diseases and disabilities which commonly plague older people, in particular those to which the medical community has given little previous attention. These include incontinence, falls and hip fractures, osteoarthritis, and other disabilities which curtail the independence of older individuals and account for a large percentage of admissions to nursing homes. Research findings already are pointing to steps that can be taken for their treatment and prevention.

The focus on issues related to maintanence of health is another priority. Our research base on good health maintenance practices for older people is limited, particulary in the areas of nutrition and exercise. More studies are needed to establish the effects on health and functioning of social phenomena such as changing family relationships, retirement, and bereavement.

Through support for research and demonstration programs, other offices in the Department of Health and Human are making efforts to improve the delivery of care to older people in cost effective ways. What is needed in addition to research is included in NIA's final priority—that of preparing health care professionals for the 21st century. At that time, 25 percent of the American population will be over 25 and the majority of all health and social services will be utilized by this age group. Current estimates indicate that we have no more than ten percent of the needed personnel for teaching and research in the fields of geriatrics and gerontology. Training and career development of health and human service professionals must at least double to reach our goal by the year 2000. We desperately need more teachers, researchers, and academic leaders to help provide training and teaching for the future needs of older people.

Obviously the potential for research and training on aging is limitless because virtually every aspect of life has relevance to older people and the aging process. I have outlined some priorities where I feel real progress can be made. One cannot do everything at once—no one person, no one institute, no one group and no one country can hope to do it all. Our Institute is eager to continue and, where possible and

promising, to increase its collaboration with scientists in other nations, responding to these challenges. I am confident in the progress already made and I am hopeful that the future of older people everywhere will benefit as we work toward our goal.

Senator GLENN. Thank you, very much.

I think we do have a couple of minutes here. We did have a little bit of audience participation earlier in the day and I thought we might open this up for a few questions. We have some excellent people here to answer them Not me, but you have two experts in this field and perhaps we can even respond to some questions with earlier panelists if anyone has questions.

Yes?

AUDIENCE PARTICIPANT. In listening to the example of England this morning where rehabilitation is used as a tool to develop their care for the future, is there any plan here in this country to research that like this rehabilitation?

Dr. WILLIAMS. It certainly is agreed upon in this country as well that this is a very important component of good care of older people. In one study that has just been reported, which I was a part of in Rochester before leaving there, a geriatric evaluation team—physician, nurse, social worker—found in reviewing every admission over the age of 75 to the hospitals of Rochester that the majority of patients needed rehabilitative elements and often were not getting them. We were able to make recommendations for improving this. But we clearly have a long way to go. I think the United Kingdom has set an enviable record on this that we need to copy more.

Senator GLENN. Dr. Grimley Evans, do you want to make any further comment on that?

[No response.]

AUDIENCE PARTICIPANT. There is a point of view current in the country that aging and aged is just an untenable word. Isn't this something that the Committee on Aging of the Institute on Aging should be dealing with?

Dr. WILLIAMS. Yes.

SAME AUDIENCE PARTICIPANT. And I would like to know whether this exists in other countries.

Dr. WILLIAMS. I can't speak for other countries, but yes, this is something we should be dealing with and it is something we are trying our very best to deal with. We do this by hearings such as this one. We do it by putting out a lot of publications. We do it by publishing the hearing records when we have people in to deal with the problems and how we are going to deal with them. I would hope that we can get beyond where we look at this as an untolerable burden just as fast as we possibly can.

Is Professor Apt still here this afternoon? I thought the comments in her paper are relevant to this question—the fact that in earlier times in some of the tribal communities in Africa the elderly were honored and revered, were the ones from whom experience got passed down, and they see all that pattern changing now. Sometimes change is not all to the better, obviously. But we want to restore some of that feeling of togetherness in the family and in the belonging that the elderly should feel, and not that older persons are just a burden. We are trying to do that in this country.

AUDIENCE PARTICIPANT. I have been troubled by a sort of major issue that everyone has touched on. I understand that retirement, there is no more—in this country you can work as long as you like. And at the same time the facts are that retirement ages are dropping very rapidly. Men and soon women will be retiring in the fifties. And then we are told that people will have more vitality. Blue Cross/Blue Shield has said recently that 65 is no longer the age, it is 75, and even though the Social Security law comes in at 65, that goes back to 1935, or way back when. We have a lot of talented people in this country who are retiring early and their talents are being wasted. We are told that the retirement is such that if you do work or do volunteer work you live longer.

We have the rest of societal problems. We have the problems of education of the young; of the single parent situation where they need that assistance; and I am interested in knowing what other countries are doing or what is happening to really think this out.

Senator GLENN. I notice that that is a good comment and a comment as much as a question on what we are doing in this country. I noticed in Dr. Chebotarev's comments in his more lengthy statement also, he pointed out in the Soviet Union that men retire at 60, women at 55, but as I gather from the statement, you also pointed out, I believe Doctor, that most of them continue working. That is their option to stop and most of them opt to continue.

Would it be because—and I believe your statement also says, if I remember correctly—that you felt in your studies that this had a very beneficial effect if they did continue to work because the psychology of it was they still felt needed. They still are part of the community. They are still doing things.

We in this country have taken a different tact in recent years in striking down some of the age barriers and saying, "No, people can continue and it is just not constitutional to say that people cannot work."

And, Dr. Williams, you may want to make a further comment.

Dr. WILLIAMS. I just want to add that this is an important topic of research supported by our institute around the issue of productivity in later years, using productivity very broadly to mean any kind of activity that is of service to others. It is a very important subject to understand better, as well as to try to do something about.

Dr. BUTLER. I might add that a number of us have been wrestling with this in various countries. It is clear that there is much more work to be done on this area. The shortage is the skill and imagination for socially contrived systems by which we match the needs with the many skills and the wisdom and the resources which older people, obviously, present. For those who do not need to, do not desire to continue to work, there are also many opportunities for leadership, for intellectual development. I have often thought that in the United States some of the school subjects we call minor, like the arts and music, perhaps should be elevated to be major topics, including athletics. So that in late life one has some very important things to turn to, in addition to the opportunities for community and social good.

AUDIENCE PARTICIPANT. I have not heard anything about it, but I am wondering whether these centurians—I think that's the word,

elderly people—are going to live to that age with their teeth or without their teeth? Are they better off not having the advantages of modern day dentistry with all the mercury and other chemicals in their mouth?

Dr. BUTLER. Dr. Svanborg has some very interesting data we might just mention about toothlessness and how it is improving, even over short spans of time.

Dr. SVANBORG. I have two things to say. The first thing is, as I mentioned this morning, that the number, the percentage of toothlessness has markedly gone down. So we can expect that this will influence upon the plans for dentistry for the elderly for the future. The other thing is that we have also found—and this has been found in many other places—that there is a greater risk of losing your teeth if you are a smoker. So I think that this is an example of how difficult it is to say that just one thing is causing something. If you asked me I would guess that those who are older who no longer have any teeth, they have a higher proportion of smokers and they have a higher risk of dying. So this is just an example.

To what extent we could also say that poor nutrition is caused by the fact that they don't have enough teeth that probably must be so. There is so much indirect evidence in that direction.

Senator GLENN. Thank you.

Dr. Beregi, you have a study going of the centenarians; can you tell us what the tie in is with dentistry and teeth and so on? Is there a correlation?

Dr. BERGI. As I already mentioned in 1960 we examined the Hungarian centenarians. According to the national census 34 individuals reached the age of 100 years at that time but the team found only 26 persons alive at the clinical checkup. They lived in the family. Our population in Hungary is over 10 million, so the number of centenarians were not high. We plan to examine again the centenarians in the next year. Now we have more centenarians and it would be interesting to compare the health condition of this centenarians with those of the previous examination in 1960.

Senator GLENN. Thank you very, very much. I wish we had a lot more time for questions, but we don't. We are going to have to end because the opening festivities, the opening session is due downtown for the 13th International Congress very shortly, and we have to make our way down there. So we are sorry we have to end this.

Let me add that I hope all of you who did not have a chance to ask questions or make comments would fill out those yellow sheets for us that I mentioned earlier today. We are also sorry that panel two had to be cut short. And I would like to say that today's participants on the panel—if you will wait just a moment, we will finish up here—to the participants on the panel, we hope that if we write to you, you might be willing to take the time to respond. We will make this part of today's hearing record. Your responses would add to the information that we have had here today.

Once again, I want to thank Dr. Frank Williams who has been here, the present director of the National Institute of Aging; Dr. Robert Butler, who took a key part in setting up this whole affair and to Mount Sinai and Dr. James Glenn for making these facilities available for us. John Heinz, our chairman, as I said before,

was sorry he could not be here. We are glad that Terri Kay Parker is here. Terri, hold your hand up again, in case people want to contact you. She is on the staff, the majority staff of the aging committee. So if any of you have questions of her you can ask her. I did not introduce earlier today Diane Lifsey, who is the minority staff director on our side. Diane is the one who mainly worked very closely with Dr. Butler in setting up the whole meeting here today. I guess I would be remiss also if I didn't point out my lovely but aging wife, Annie, who is with us here today. Annie, stand up. [Applause.]

And most of all, we who have been here at the podium or the participants here today wish to thank all of you. We have had an exceptionally high attendance here all day. It shows there is interest in this subject, interest in this field. We have got to keep it going. That's the way we get some things done. So I congratulate all of you today.

Thank you.

[Whereupon, at 3:40 p.m., the hearing was adjourned.]

APPENDIXES

Appendix 1—Questions to Witnesses From Senator John Glenn

Questions to Dr. Grimley Evans

Senator Glenn:

It has been very interesting to hear about the activities going on in each of your countries relative to the aging of your populations.

Is there coordination among the European countries in terms of planning, learning from each other about health services, geriatric training and research? Are you sharing resources in science for research on aging?

Are the elderly considered a burden in your country -- due to the public spending for their pensions, health care, social services, etc? Is there a tension among the generations?

Dr. Grimley Evans:

Cooperation among the European countries is increasing in terms of the study of aging in all its manifestations. With funding from the EEC there is a major international comparison going on about the social situation of the elderly and patterns of disability and disadvantage among them in the community. There are also increasing numbers of meetings between biological and social scientists working on aging and the value of these is being increasingly recognized.

It is traditional in Britain for the term "burden" to be used when speaking of the costs of specific services for the elderly. I do not believe, however, this represents any animosity towards or resentment of older people and I do not see much sign of any sense of tension between the needs of different generations.

Senator Glenn:

I was particularly interested to learn of the emphasis on multidisciplinary assessment teams to determine the appropriate level of care for the elderly -- whether institutional care is really necessary or whether a person could be cared for at a home.

What percent of the applicants (Are these people about to be discharged from the hospital?) are found to need a less intensive level of care -- if the services are available in their homes and communities?

Dr. Grimley Evans:

There have been two studies in Britain of the effects of medical assessment of applicants for placement in local authority residential homes. In the study by Brocklehurst, et al, (Lancet, 1978, vol. 2, pp. 141), 16 out of 100 were able to continue living in the community after assessment. In a Newcastle study (Hutchinson, et al, in Advanced Geriatric Medicine 4, (J. Grimley Evans and F.I. Caird eds.), London, Pitman 1985, pp. 50) 14 out of 32 were found capable after appropriate management of continuing to live in the community. These multidisciplinary assessments were carried out in the context of a geriatric day hospital.

Senator Glenn:

Are higher levels of home and community care lowering the rates of institutionalization, or is this expansion an add-on to nursing home and hospital expenditures?

Do you believe that expanded public programs of care for the elderly supplement or replace the care given by family members? What is being done in your country to encourage/assist family caregivers, many of whom are women?

I would be interested to hear further about alternative living arrangements for the elderly in your countries. I believe that it makes sense to expand congregate facilities where services can be provided to a group of elderly living together -- services that might keep them out of nursing homes.

Dr. Grimley Evans:

The history of institutionalization of the elderly in Britain shows that the rates fell steadily from 1900 until 1950. At ages under 80 rates have remained level since that time, while above the age of 80 rates have increased until the 1970s and have remained constant since. Over this post-war period, however, the social support available to elderly people in Britain has declined considerably owing to a secular fall in the size of families, greater mobility and a general improvement in housing so that many more older people now live alone than was the case in the 1950s. My interpretation of these trends is that the higher levels of home and community care have held rates of institutionalization at very much lower levels than would have occurred in the absence of community care programs.

All the evidence in Britain suggests that the expansion of public programs of care for the elderly does not inhibit care given by family members. There is increasing attention being given to the deployment of statutory services in order to encourage and assist family caregivers. For example, most hospital geriatric services run systems of day care and intermittent short-term hospital admissions to take the pressure

off caring relatives and to permit them to take holidays. Domiciliary services also tend to be deployed in cooperation with family caregivers; for example, home helps may call on days when relatives are unable to provide meals for an isolated elderly person.

The main alternative in Britain to collective residential living is in the form of sheltered housing. This may be provided by the local authority or by voluntary agencies and consists usually of grouped convenience designed single storey dwellings. There are two types of sheltered housing; in one a resident warden is available for providing help and reassurance to elderly people, usually contacted through some intercom system. In the other grade of sheltered housing there is no resident warden but alarm systems may be fitted. In the voluntary sector, accommodation intermediate between the sheltered housing and the residential accommodation may be provided in which elderly people have their own room in a large house and where one meal may be provided in a communal dining room each day but residents are expected otherwise to be independent. This type of pattern is particularly associated with the Abbey-field Charity.

Senator Glenn:

We are all aware of the great suffering caused by the dementias, both for the victim and his or her family. The human and economic costs are great -- and will increase since rates of dementia increase steeply with age.

What programs are being developed in your country to help care for victims of Alzheimer's disease, and to provide support for their families?

Are there ongoing cross-national studies about the best way to care for victims of Alzheimer's disease and other senile dementias?

Dr. Grimley Evans:

Most care for Alzheimer's Disease victims and their families is provided through the ordinary statutory domiciliary services. In most districts in Britain there are now specialist psychogeriatric services in which skilled support is available particularly from community psychiatric nurses. The Alzheimer's Disease Society is developing a helpful literature and counselling service and also developing protocols for the optimal care of patients and to guide caring relatives.

Senator Glenn:

It has been predicted that here in the United States we will have an oversupply of physicians later in this century -- I am not sure if this is the case -- but it is my understanding that

other nations, including Great Britain and France, have more physicians than postgraduate positions, and have physicians out-of-work.

Do you think geriatric medicine might benefit from this apparent oversupply?

Dr. Grimley Evans:

It is very difficult to clarify the position in Great Britain about the oversupply of physicians. Most doctors during their early career have periods when they are waiting between jobs and it is now customary for such doctors to register as unemployed were it was unusual to do so in the past. It is possible that these gaps in the career may have become more frequent and longer owing to a "bottle neck" in one particular part of the career structure at hospital SHO grade. I believe, however, there is considerable doubt as to whether there are any long-term unemployed doctors in Britain at present. It has been claimed that doctors in Britain have in recent years been more prepared to look at careers in geriatric medicine because of other specialties becoming over subscribed but it is over this same period that the teaching of geriatric medicine has become much more universal in medical schools and working conditions in the specialty of geriatric medicine have become so very much more attractive.

Senator Glenn:

It is my understanding that, as with the general population, the attitudes of medical and other health professions students about aging and the elderly need to be changed. This is being done here through training experiences in teaching nursing homes and home health visits.

Do medical students in your country have these experiences?

Dr. Grimley Evans:

Most departments of geriatric medicine with responsibilities for teaching medical students take students on home visit to elderly people and also to visit the various types of facilities involved in giving care to older people. My guess is that at least eighty percent of medical students in Britain have such experiences.

Senator Glenn:

I often hear that the medical profession is not particularly sensitive to the needs of the elderly -- i.e. use of multiple drugs by the elderly can lead to complications, but often a doctor does not take the time to learn about all the medication an elderly person is taking.

Is this true in your country? How can we sensitize the medical community?

In treating elderly patients, do health professionals consider things such as income, availability or supportive care at home, living arrangements and stresses such as the death of a spouse?

Dr. Grimley Evans:

The problems of inadequate identification of problems in the elderly and inappropriate medication are still present in Britain but diminishing quite rapidly. In the medical profession poor quality of care among the elderly is now largely restricted to doctors who qualified more than 15 years ago or to doctors working in poor quality settings such as inner-city general practice. There is, however, some variation between hospital specialties in the sensitivity to the needs of the elderly. Considerable attention is paid to matters of prescribing and the social and economic situations of patients in higher examinations for physicians but these matters deserve more attention than they are currently receiving in the training of surgeons.

Senator Glenn:

At a recent hearing I held in Toledo, Ohio, we discussed how to have a healthy old-age -- and that lifestyle changes (diet, exercise, stopping smoking, etc.) can have a tremendous impact on one's health in later years.

Is there an emphasis on health promotion/disease prevention in your country? How effective are health promotion education programs -- for both young and elderly?

Will these health promotion/disease prevention measures shorten the period of dependency -- the period of need for long-term care or just postpone it?

Are advances in technology being used to help chronically-ill elderly, e.g. those with arthritis?

Dr. Grimley Evans:

There are increasing resources being put into health promotion education in Britain with most Health Districts now having Health Promotion Education Officers. Some charitable organisations, for example, Action on Smoking and Health, are also active in this field but it is one where Britain has been relatively late in developing activity.

I believe that because the fatality of all conditions increases so steeply with age that any measure which postpones the onset of dependency will in general also shorten it. It is not possible to demonstrate this epidemiologically, however, because the quality of long-term care has been improving, thereby tending to prolong survival.

In Britain, as in the United States, there has been tremendous advance in the use of technology of joint replacements in arthritic patients in recent years and orthopaedic engineering is a very active research area in Britain at present. Engineering departments are also, in a number of universities, turning their attention to broader aspects of aid for chronically disabled patients.

Questions to Carel F. Hollander, M.D, Ph.D.

Senator Glenn:

It has been very interesting to hear about the activities going on in each our your countries relative to the aging of your populations.

Is there coordination among the European countries in terms of planning, learning from each other about health services, geriatric training and research? Are you sharing resources in science for research on aging?

Are the elderly considered a burden in your country -- due to the public spending for their pensions, health care, social services, etc? Is there a tension among the generations?

Dr. Hollander:

The elderly are not considered a burden in the Netherlands. However, it is more and more realised that the graying of the nation will cause tensions in the near future, both in the sense of economics and health care expenditure. Under the auspices of the WHO Regional Office for Europe in Copenhagen, coordination and exchange of information on planning, health services, geriatric training and research take place. The European Community has initiated a program on the biology of aging in which the participants are sharing resources. Furthermore, several other activities take place related to problems of the elderly in the member states.

Senator Glenn:

Here in the United States, Mount Sinai is the only one of our 127 medical schools with a Department of Geriatrics and Adult Development. However, I would like to add that the State of Ohio appropriates money for our seven medical schools to support offices of geriatric medicine. I was very interested to learn from Dr. Grimley Evans about the 3 models for the training and deployment of geriatricians in the United Kingdom, and I agree that they offer a helpful source of study.

Would you care to comment on whether geriatrics should be a medical speciality? Or whether our emphasis should be on ensuring that all health professionals are trained to care for their elderly patients?

Dr. Hollander:

In the Netherlands geriatrics is recognized as a specialty. It is also felt necessary to incorporate gerontology and geriatrics into the curriculum of the medical schools and provide adequate

training to health professionals in order to cope adequately with the problems of the elderly.

Senator Glenn:

It has been predicted that here in the United States we will have an oversupply of physicians later in this century -- I am not sure if this is the case -- but it is my understanding that other nations, including Great Britain and France, have more physicians than postgraduate positions, and have physicians out-of-work.

Do you think geriatric medicine might benefit from this apparent oversupply?

Dr. Hollander:

Presently, there are no signs in the Netherlands that the existing oversupply of physicians has a positive impact on geriatric medicine.

Questions to David M. Macfadyen, M.D.

Senator Glenn:

Would you please describe briefly what are the goals of the World Health Organization's (WHO's) "Global Program for Health of the Elderly?" How is it being coordinated? Implemented?

Dr. Macfadyen:

The goal of the World Health Organization Health of the Elderly Programme is to support the continuous evolution and adaptation of technologies and approaches aimed at protecting and promoting the health of elderly people. This is an explicit statement of the programme for the period 1984-89. Our our "Senate", the World Health Assembly, passed its first-ever resolution on aging in 1981. The structure of the programme is built on a foundation for policy on the twin pillars of prevention and alternatives to institutional care. A second resolution in 1982 proposed that our Organization should go beyond traditional medical concerns and involve the health sector in the larger context of improving the quality of life for aging people.

Just as you have official records, the World Health Organization also keeps public records of programme implementation. These are published as the "Work of WHO". The first-ever mention of the aging programme was in the Work of WHO in 1982-83 and the entry for the biennium describes the 3 elements of the programme:

- o epidemiology (studying the determinants of age and aging)
- o national health development (policy analysis and planning)
- o technology (production of technical guides on drugs, prevention of cardiovascular diseases, mental disorders, etc.)

The global coordination team consists of myself, a part-time administrator and a senior secretary. However, we have one responsible person for the WHO programme in each of WHO's 6 Regions, based in Washington, New Delhi, Manila, Brazzaville, Alexandria and Copenhagen. The biennial budget, exclusive of salaries, is US$250,000 approximately. A draft report in WHO Work in 1984/85 is attached.

23 September 1985

DIRECTOR-GENERAL'S

REPORT ON THE WORK OF WHO

1984-85

Contribution

to

Chapter 16

on

Health of the Elderly

HEALTH OF THE ELDERLY

1. Growing concerns of national delegations for the health and wellbeing of the elderly was expressed in 1984/85 in the deliberations of WHO's constitutional bodies. World Health Assembly delegates identified family and social solidarity as the key issue. Delegates in the Thirty-sixth session of the Regional Committee for Western Pacific urged cooperation between countries in developing data-bases for planning.

2. Towards a preventive medicine of old age: the scientific community shares this worldwide concern, and the global Advisory Commitee on Medical Research at its Twenty-Seventh session considered a proposal for a WHO-coordinated international research programme on aging, with a view to developing a preventive medicine of old age.

3. Each of the three elements of the Programme includes activities with quantified impact. The Epidemiology component calls for the compilation of national demographic and health profiles of the elderly in 50% member states by 1987; the National Health Development component plans to support policy analysis and planning in 16 countries by 1987; and the Technology component proposes explicit topics for 4 technical monographs each year.

3.1 Epidemiology: surveys of the health, social and economic conditions of the elderly were conducted in 9 Latin American and Caribbean countries and in the Republic of Korea, Malaysia, Philippines, and Fiji, bringing the total of such WHO-supported national surveys to 25 in 4 Regions. To provide an information base upon which countries can develop rational policies, national demographic and health profiles of the elderly were compiled for some 50 countries in four Regions. Existing international data sources are being exploited. Map-based data displays allow the user to quickly understand the implications of aging for health planning and management. Planners, service providers and academics from 5 Regions attended the First International Course on the Epidemiology of Aging organized jointly by WHO, the London School of Hygiene and Tropical Medicine and the Department of Health and Social Security of the United Kingdom. These annual courses are designed to help Member States, and indeed WHO itself, to reconceptualize policies and programmes and devise imaginative and innovative strategies for promoting the wellbeing of

the elderly. "The Wellbeing of the Elderly: a guide to multidimensional assessment", published in 1984, reviews measures of established validity for assessing the function of the elderly within defined populations. Another key publication is the report of a scientific group on "The Uses of Epidemiology in the Study of the Elderly" [1]

Epidemiology is thus at the heart of both global and regional programmes. In Europe, a Consultation on Guidelines for Assessing the Functioning of the Elderly took place in Aberdeen, United Kingdom, in March 1984 and medicosocial screening was identified as an important preventive tool. The "Prevention of Health Risks that have Consequences in Old Age" was also the theme of a Working Group that met in October 1984 in Tbilisi, USSR.

3.2 National Health Development: (a) Intersectoral planning - WHO is called upon (in WHA35.28) to go beyond traditional medical concerns and involve the health sector in the larger context of improving the quality of life for aging people. Cooperation with non-health sectors is effected through the mechanism of national committees on aging, which exist in some 56 countries. The Regional Office of South East Asia has been encouraging the activities of such Committees and, in 1984, organized an Intercountry Consultative meeting on National Plan Formulation for the Health of the Elderly. This allowed countries with national plans for the elderly (such as Thailand) to exchange experiences with other planners.

Similar meetings on policy analysis or planning for the elderly took place in Oslo, Norway, in March 1984; in Leeds/Edinburgh, United Kingdom, in July 1984; in Washington, USA, in October 1984, in Fukuoka, Japan, in October 1984, in Punte del Este, Uruguay, in April, 1984; in Buenos Aires in October 1985. Several of these have used the WHO computer-assisted planning (CAP) tool described in the World Health Statistics Quarterly Vol. 37, no. 3, 1984. In summary, countries in 5 Regions are involved in applying the WHO planning methodology (MPNHD) to meet present and future needs of the elderly. The exception is the Region of Africa, where the overwhelming problems in 1984/85

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[1] WHO Technical Report Series, No. 706, 1984.

led to concentration of efforts on sheer survival. The elderly, unfortunately, were not spared in the famine, a fact noted by delegates of 24 countries to the first African Conference on Gerontology organized in Dakar, in December 1984 by the International Centre of Social Gerontology and the United Nations Organization.

(b) Collaboration with Non-Governmental Organizations - the International Centre on Social Gerontology (ICSG) was accepted into official relations in 1984, together with the International Federation on Ageing (IFA). The ICSG has set up a data base to handle information on social gerontology especially related to developing countries, and convened a meeting on behalf of WHO, the product of which is a publication on falls in the elderly. The IFA acts as a repository on a global scale for self/health/care material, and has developed a guide for setting up day centres.

Reports are available of the annual meetings of the NGO/WHO Collaborative Group on Aging which were attended by representatives of 26 and 32 organizations in 1984 and 1985 respectively, providing a forum for exchanging information and for planning collaborative activities also at the regional levels. A group of NGOs convened a meeting for coopeation with the American Region of WHO in Washington, October 1985. The South East Asia Regional Office also cooperated closely with nongovernmental organizations, such as HELPAGE International. Examples of the productive outcomes of such collaboration is a WHO Manual, published in 1984, on "Self Health Care: a Guide to Policy and Programme Development" and a "Guide to Assuring Quality of Long-Term Care".

(c) Health of the elderly as an integral part of primary health care: according to the responses reported in 1985 by 96 Member States to the Economic and Social Council of the United Nations, in their assessment of the implementation of the Vienna International Plan on Aging, primary health care has been widely adopted as a strategy for providing health care to the elderly, and in several cases given legitimacy through law.

4. Dissemination of technological information:

4.1 Technical guides have been prepared on "Drugs in the elderly", "Cardiovascular care of the elderly", "Nutrition in the elderly", "Mental

disorders of the elderly", "Lifestyles leading to physical, mental and social wellbeing in old age", "Aging: implications for nursing". All texts have been reviewed by international groups of experts to ensure global appropriateness. These guides are expected to be on the shelves of schools of health professionals in 1986. An Arabic version of the Drugs monograph is being prepared in the Eastern Mediterranean Region.

4.2 Interdisciplinary and professional training: (a)together with the International Association of Gerontology (IAG), the WHO Guide for Teachers on Health Care of the Elderly, published 1984, was updated during the WHO/IAG Interregional meeting on education in health care of the elderly, a satellite meeting to the IAG quadrennial congress, New York, 1985. The congress itself paid particular attention to care of the elderly in developing countries. For the first time, all WHO Regional focal persons for the elderly programme were gathered at these two meetings, and discussed current and future activities of the WHO programme. (b) To encourage the production of Spanish-language material, a joint HQ/PAHO/EURO mission to Spain took place in May 1984. (c)Assistance was given to Seychelles to develop postbasic nursing education materials. (d)A National Seminar on Advances in Geriatrics was sponsored in China in 1984. This focused on the development of community-based programmes for the care of the aged, as well as on teaching of health of the elderly in medical and nursing schools. (e)The Eastern Mediterranean, American and Western Pacific Regions are beginning to provide Fellowships in the field of aging.

4.3 Research: two global scientific meetings in 1985 on "Nutrition in the elderly" and on "Perspectives for Immunological and Neurobiological Research in Aging" made proposals to internationalize research on aging, drawing attention to the potential which lies therein for developing a preventive medicine of old age. To follow up the recommendations of an earlier Scientific Group on Senile Dementia,[2] a WHO task force has been established and convenes twice yearly. The first major event was a WHO-supported conference with Alzheimer Disease International (ADI), and a WHO Collaborating Centre, Belgium, 1985, to discuss support to persons suffering from this disease.

[2] WHO Technical Report Series, No. ...., 1985

Questions to Professor Nana Apt

Senator Glenn:

I was very interested in your remarks about the traditional African Family System and their care for the elderly and the changing situation today brought about by industrialization and urbanization.

Do you think that because of the traditional emphasis on family responsibility, the government is not doing what is perhaps necessary to adapt to the changes taking place?

Professor Apt:

Let me put it this way. That governments of Africa are not doing what is perhaps necessary mostly because they are unaware of the changing situation. You see until very recently aging was not even a subject discussed among the problems of Africa. The assumption to date is that the aged people are being taken care of by the extended family. This assumption is untested and unproven in many African Countries, and many people including governments really believe everything is all right with the elderly. Besides the elderly population in Africa to date is statistically so insignificant (e.g. 2.8% in Ghana) to warrant any notice in the disbursement of the usually very tight government budgets.

Senator Glenn:

Are policy makers planning for these changes:

- care of the elderly who are separated from family members?
- Health care/geriatric medicine?
- Income support?

Professor Apt:

Policy makers can make meaningful planning for these changes only when there are sufficient enough studies and documentation on the situation of the elderly in Africa. Presently, I am afraid there isn't much to base any planning on, so in my opinion the first step in planning should be in the area of research.

Senator Glenn:

I noted from some figures I got from the U.S. Census Bureau that the life expectancy of men in Ghana is 50 years; for women 54 years. And that just 2.8% of the population in Ghana is age 65 and over.

Do you expect African nations to make progress in the future in combating malnutrition, infectious diseases, and other public health problems so that they can prolong the lifespan as we learned has been done in China?

Professor Apt:

Many African countries have made some progress in these areas and are continuing to make further progress. Many countries like Ghana are seriously paying attention to developing programmes for primary health care in their efforts to achieve "health for all in the year 2000" as embodied in WHO global programme for health care. The pace is slow but I am sure that lifespan can be prolonged also in Africa.

Senator Glenn:

I also noted in your testimony that the traditional respect and reverence accorded to older Africans has been eroded due to increased education and industrial modernization. As the use and importance of money, employment, and skilled labor increases, the skills of the elderly become obsolete, lowering their status.

We see this problem in many nations -- that of "putting the elderly out to pasture" -- I know Dr. Forette of France mentioned it in her testimony. She emphasized that older persons have much to contribute to society -- and they represent a rich national resource of skills and experience. I think we could learn a lot from the traditional attitudes toward the elderly that we find in Africa, China, and Japan.

Do you have any comments on this -- and are African countries working to involve older persons in the social and economic development of their nation?

Professor Apt:

Older persons in Africa are still involved in the social and economic development of their nation. Unlike the USA, a majority of the older people in Africa are self-employed farmers and artisans and for them there are no pensions and no social security. They work all their lives contributing immensely to the economic development of their countries. Traditionally the elderly in Africa are regarded with respect for their store of knowledge in traditional skills, folklore and customs. This respect though wanning is still very much the same in rural areas where the greatest majority of Africans reside.

I think it would be necessary for African governments to take stock of the changes taking place in patterns of family life as a result of modernisation and also the kind of problems that are emerging or likely to emerge which would be detrimental to the well being of the elderly. Then and only then could African governments hope to formulate a realistic policy ensuring continuing integration of the elderly within the family. I think at the stage where we are in Africa Gerontology research is very important.

Questions to Ambassador de Alvarez

Senator Glenn:

I was very interested in your comments about UNICEF -- which was created in 1946 in response to the demographics of that time -- many young people -- and which you say has won a Nobel Peace Prize:

What would it take to establish UNIFA -- your proposed United Nations Institute for the Aged? What is the process for establishing an autonomous agency within the United Nations?

Ambassador de Alvarez:

In order to establish a permanent institutional arrangement, within the United Nations, a resolution would have to be submitted to the Third Committee of the General Assembly of the United Nations. The Committee would study this resolution, make its recommendations to the General Assembly which would in turn approve (or disapprove) it.

The Dominican Republic delegation to the United Nations has been working with other interested delegations and has drafted a resolution which has been sent to the Dominican Republic government for approval.

The support of the United States government to this resolution would be invaluable and I respectfully request from you, Senator Glenn, to seek the approval of the Senate Special Committee on Aging so that it can recommend to the United States government to give its support to this resolution in the forthcoming fortieth General Assembly.

Attached is an outline of the proposed resolution for your consideration.

The resolution would request the following:

1. To establish a United Nations Program for the Aging. This voluntarily funded agency of the United Nations would have as its principle responsiblity the effective implementation of the 1982 International Plan of Action on Aging.

2. Establishment of a secretariat in the United Nations which would be financially supported through voluntary contributions and located at the United Nations headquarters in New York. This secretariat would assume all of the responsibilities in the field of aging hereto for vested in the Center for Social Development and Humanitarian Affairs by the International Plan of Action on Aging and other United Nations resolutions and documents.

3. Creation of the post of Executive Director for this Program at the level of Under Secretary General, to be elected by the Assembly for a four year term, on the nomination of the Secretary General and with the following functions:

   a. Administer the secretariat, the program and Aging Fund.

   b. Provide substantive support fo the Governing Council.

   c. Implement, under the guidance of the Governing Council, the International Plan of Action on Aging.

   d. Perform such other functions as may be entrusted to him by the Governing Council.

4. Transfer the projects, assets and files of the United Nations Trust Fund for the World Assembly on Aging, created by General Assembly Resolution 35/11 129 of 11 December 1980, and currently the responsibility of the Center for Social Development and Humanitarian Affairs in Vienna, to the United Nations Program for the Aging and re-name the Fund the United Nations Program for the Aging Fund (UNPAP). This voluntary fund will have the same terms of reference as its predecessor, as laid down in various United Nations resolutions, and will focus on small scale technical assistance projects designed to provide advice and assistance to developing countries, in particular the least developed ones, in formulating and implementing plans and programs for the aging.

5. Establish a Governing Council for the United Nations Program for Aging composed of 36 members, elected for three year terms, on the basis of equitable geographical distribution and meeting annually with the following functions:

   a. Provide general policy guidance to the Executive Director in implementing the International Plan of Action on Aging.

   b. Provide international support for the UN Program for the Aging, among governments, non-governmental organizations, inter-governmental organizations and the Specialized Agencies and other parts of the United Nations system.

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c. Insure that voluntary funds are made available to carry out the responsibilities of the Program.

d. Assume all of the responsibilities for aging issues given to the Commission for Social Development by paragraph 118 of the International Plan of Action on Aging and by other resolutions and documents, and report annually to the General Assembly, through the Economic and Social Council, on the world aging situation and on the United Nations Program on Aging.

6. Include in the provisional agenda of each session of the General Assembly an item entitled "Report of the United Nations Program for the Aging" under which the report of the Executive Director of the Program would be considered.

Senator Glenn:

Delegates from around the world have gathered at this time in Nairobi for the United Nations Women's Decade Conference, 10 years after the United Nations' Decade for Women was launched in Mexico. Have there been particular activities, any particular emphasis during this Women's Decade on older women?

Ambassador de Alvarez:

Yes, there has been some emphasis during the Decade on older women. At the Nairobi Conference there was an NGO forum and a resolution dealing with older women. There was also a paragraph in the Forward Looking Strategies about this issue.

However, I feel that not enough has been done considering the fact that females comprise the majority of the aged population. This is an irrefutable fact and yet, in spite of it, women rarely surface as the central issue in aging. It is the general consensus that the problems of the old are generic and thus, if a particular problem is addressed, then both men and women benefit.

I was thus, particularly interested to learn that you have been holding hearings in your home state of Ohio on "Women In Our Aging Society", and I encourage that these hearing continue in other states, for there is a great and real need to develop a conceptual framework to address the trends, shift and demands on the social order that a female aged society reflects.

Senator Glenn:

It is my understanding that this year, 1985, is when the 124 Nations that participated in the 1982 U.N. World Assembly on Aging are to report on their activities to implement the Plan of Action that was adopted in Vienna (in 1982). What are your feelings about the progress that has been made since the 1982 World Assembly on Aging?

Ambassador de Alvarez:

I feel that the World Assembly on Aging filled a great need, for it focused the attention of countries, particularly developing countries, on the crisis that they would have to confront due to the changes in their population structure.

In my country, the Dominican Republic, a "Division for the Protection of the Aged" was created. Unfortunately, this Division has been dismantled due to the deep economic crisis facing our nation. Our population is a young one, thus, priority is given to children. This in spite of the fact that we are aware of the great problems that will be caused by the tremendous increase in our elderly population.

Developing countries must be helped to plan for the future, and the elderly must be incorporated into the development process.

In 1983 the Government of the Dominican Republic requested assistance from the United Nations in formulating and implementing policies and programmes for the aging. Although the Substantive Review Committee positively evaluated our request, it is still forthcoming. According to the Secretary General's report of October 3rd, 1984, requests for assistance far exceeded programmable resources.

It has become evident that the Aging Unit of the Center for Social Development and Humanitarian Affairs of the United Nations lacks the resources to effectively implement the Plan of Action according to the mandate given to the Center by the World Plan of Action.

My feelings about the progress that has been made since the World Assembly are these: that some progress has been made, but that the challenges posed by an aging world can only be met by creating a specific UN organization to handle the problems of the aged, as it has effectively handled the problems of children.

The World Assembly focused the world's attention on the crisis situation it would be facing due to the aging of its population. Now the United Nations must act -- not only look into the future but try to make a better future for our world's elderly.

Questions to Kazutomo Imahori, Ph.D.

Senator Glenn:

Do you believe that aging research -- concentrating on the cellular and molecular causes of aging -- as opposed to disease-related research should be the central focus for biomedical research? And should receive more support than at present?

Does you Institute have a long-term research plan? What are your priorities? How have they been developed?

Dr. Imahori:

Aging might be understood as the physiological changes due to the expression of genes which are triggered by the biological timer. If so, cellular and molecular mechanism of aging will afford the real bases for solving the problems of malfunction in the elderly. In this connection we are asking to increase the budget for the research on physiological aging, ten times as much as the present sum.

Our Institute put first priority on the elucidation of the gene which determines Alzheimer disease.

Senator Glenn:

What is the importance of longitudinal studies -- in which researchers are trying to distinguish normal aging from the effects of disease in the elderly, by studying large numbers of reasonably healthy people as they grow older? We have an important study going on here -- the National Institute on Aging's Baltimore Longitudinal Study -- and I was interested to hear about the studies in Hungary and the USSR. Is this an area for international collaboration/cooperation? Are there problems in keeping researchers and participants involved over long periods of time? Are women included in your longitudinal studies?

Dr. Imahori:

Importance of the study exists in that it will give meaningful results on the epidemiological study. Since aging is quite variable in accordance with the individuals the general statistical treatment will mean almost nothing. By tracing each individual's chronology it is expected risk factors for aging would be uncovered. In this study, women are included and compared with men. In order to discriminate genetic factor and environmental factor comparison of Japanese in main island and Hawaii would be very effective. International cooperation should be encouraged in this sense, too.

Senator Glenn:

How important do you think aging research and longitudinal studies will be in explaining the gap in life expectancy between men and women? It is my understanding that this so-called "feminization of poverty" is taking place in all of our countries.

Dr. Imahori:

No answer at present. Probably completely due to chromosomal difference.

Senator Glenn:

What progress is being made with regard to research on Alzheimer's disease? This is a priority here in the U.S.

Dr. Imahori:

We are approaching the gene of Alzheimer's disease.

Senator Glenn:

In the hearings I am holding in Ohio on women and aging, we have discussed what both younger and older women can due to promote a healthy old-age. One disease that is receiving a great deal of attention, and that particularly affects women, is osteoporosis. It appears that osteoporosis can be prevented and treated through diet, increased calcium intake, exercise, and estrogen therapy -- although there is some controversy about the latter. Is osteoporosis receiving the attention of researchers, health care practitioners, and individual citizens -- particularly women -- in your country?

Dr. Imahori:

Yes. In Japan the problems are almost the same as in U.S.

Senator Glenn:

An issue we discussed, and one which I know is of great interest, is the need for increased emphasis on geriatrics and gerontology -- and you have commented on this in you statement. Given the growing elderly population in Japan, do you see any hope for increased government funding for researchers in aging? For more coursework in geriatrics?

Dr. Imahori:

As described before we are trying to increase research money. As for the courses in Geriatrics it is close to hopeless in Japan, at present.

Senator Glenn:

I was interested to learn that your Institute and our National Institute on Aging signed an agreement for mutual research and an exchange of researchers. What are your hopes with regard to this agreement and others?

How can various Institutes on Aging collaborate in cross-national research and epidemiological studies?

Is there a formal arrangement among Aging Institutes around the world for sharing information? Do the Institutes work with the World Health Organization and the U.N.?

Is there an international fellowship program for gerontologists? I know that scientists from other countries do come here -- to the Fogarty International Center for Advanced Study in the Health Sciences at NIH. Is some of their study and research of particular relevance to aging?

Dr. Imahori:

Besides that the exchanges of information and scientists are very effective to the progress of researches we can count other merits, too; promotion of morale, increase of the budget, and so on.

If the criteria of diagnosis and methodologies are standarized collaboration can be achieved easily by the information exchange.

Our Institute is becoming the Collaborating Center of WHO for the Health of the Elderly.

At present no fund specific to the research on aging. However, since aging is multidisciplinary and has not its own discipline research in the framework of any discipline will contribute to the progress of research on aging.

Questions to Robert N. Butler, M.D.

Senator Glenn:

I was particularly interested to learn of the emphasis on multidisciplinary assessment teams to determine the appropriate level of care for the elderly -- whether institutional care is really necessary or whether a person could be cared for at home. Are such assessments common here in the United States? What happens to elderly patients about to be discharged from Mount Sinai?

Dr. Butler:

The use of geriatric interdisciplinary (team) geriatric assessment is not common in the United States unfortunately. Dr. Laurence Rubenstein of the Sepulveda Veterans Administration Hospital in Los Angeles has described the effectiveness of an Inpatient Geriatric Patient Assessment Unit in a 1985 issue of the New England Journal of Medicine.

Here at Mount Sinai we do have an extensive Outpatient Clinic serving some 2500 patients per year which does provide team assessment of function. Its goal is the maintenance and promotion of functional status, of improved function. We have a back-up 12 bed Acute Geriatrics Unit devoted to the preservation of function. Naturally, we endeavor to create careful discharge planning.

Our program is the largest and most comprehensive geriatric program in the country. It does not have the resources to serve all older persons cared for at Mount Sinai which would be over 40% of all patients served. In time we hope that what we learn will have generalizability and will be applied to all persons throughout the entire hospital.

Senator Glenn:

Here in the United States, Mount Sinai is the only one of our 127 medical schools with a Department of Geriatrics and Adult Development. However, I would like to add that the State of Ohio appropriates money for our seven medical schools to support offices of geriatric medicine. I was very interested to learn from Dr. Grimley Evans about the 3 models for the training and deployment of geriatricians in the United Kingdom, and I agree they offer a helpful source of study. Would you please comment on whether geriatrics should be a medical speciality? Or whether emphasis should be on ensuring that all health professionals are trained to care for their elderly patients?

Dr. Butler:

I firmly believe that geriatrics should be a medical academic specialty. It is essential that we intergrate the teaching of geriatrics throughout undergraduate, graduate and post-graduate (continuing) medical education. This can be accomplished if we have the academic leadership to provide the teaching. Such leadership should compromise the cadre of researchers and innovators of health service delivery. Moreover, we need academic geriatricians to provide consultative backup to primary care and specialty physicians. We can achieve such academic geriatrics through systematic subspecialization within medicine. This is beginning in internal medicine. The American Board of Internal Medicine has moved to create a certificate of competence within internal medicine. It is hoped that family practice and psychiatry will follow these steps. This would go a long way towards meeting geriatric manpower needs projected by the Rand Corporation. However, the financial resources are not available to support such education. Medicare funds which are used for graduate medical education should be used to develop geriatrics. This would require modest redirection of such funds.

If we do not move soon to train physicians in geriatrics we will have a serious problem on our hands. We must not wait until 2020 when baby boomers reach their maximum and 20% of our population is over 65 before we begin to train geriatricians.

I have emphasized the position that all health professionals must be trained to provide care for their elderly patients, discover new knowledge and apply it and inaugurate innovative service programs.

Senator Glenn:

It is my understanding that, as with the general population, the attitudes of medical and other health professions students about aging and the elderly need to be changed. This is being done here through training experiences in teaching nursing homes and home health visits. Would you please comment on the programs you have initiated? They seem very beneficial and something that should be expanded.

Dr. Butler:

While I was Director of the National Institute on Aging, I wrote a paper on the "Teaching Nursing Home" for the Journal of the American Medical Association (June 1980). After years of frustration in supporting regulatory reforms in nursing homes (the creation of standards and their enforcements), I have come to believe that the parallel effort of education and persuasion is critical. Moreover, there is a whole unexplored world in the nursing home of diseases and disabilities that we must better

understand so that we can prevent and treat them. It is important that medical nursing and allied health students enter the doors of the nursing home.

I also established the teaching nursing home award at the National Institute on Aging. There are now 5 that are supported by the National Institute on Aging. This is obviously inadequate. There should be at least one teaching nursing home for each of the 127 medical schools that exist in the United States. This would not be expensive and would provide a "Gold Standard" or model or set of flagships to give all nursing homes the opportunity to emmulate the teaching nursing home. It is not responsible of medical schools to graduate physicians in the absence of training in nursing homes. There are now more patients in nursing homes than there are in hospitals yet only 17% of doctors today visit nursing homes. We have to change all that. The teaching nursing homes is but one mechanism.

Thankfully, the Robert Wood Johnson Foundation also supports the teaching nursing home concept. Their program is focused upon schools of nursing. At the moment, 11 such programs exist. I have been privileged to serve on its advisory committee and can assure you that this program, although different from that supported by the National Institute on Aging, is an extremely valuable one.

Most Alzheimer's disease patients are in nursing homes and perhaps 50% of patients in nursing homes suffer from Alzheimer's disease. That suggest one more reason why we must have teaching nursing homes.

Appendix 2—Statements Submitted by the Hearing Audience

There needs to be an emphasis on multidisciplinary research and particularly the value of the nursing profession in an environmental research paradigm regarding home care as long as possible.

Dr. Mary B. Walker
Philadelphia, Penn.

It would be a great help to myself and many senior citizens to have more information about Medicare (which we have) -- how to get some of our monies back which we have paid on bills. We can't seem to get any money back on lab tests ordered by doctors. No one can explain this! Also they do not print the $75 deductible early enough even though you have much more than this amount.

Helen H. Coyle
New York, New York

The expulsion of the elderly from their working life should receive more psychological and social consideration in research.

Herbert J. Rosenberg
New York, New York

I suggest that you reevaluate the importance of home care with potentially more elderly in 2000, and higher medical costs. I believe the provision of home care will alleviate suffering and cut costs of nursing care. Payment of Medicare coverage might be one way of paying towards home care costs.

The passing of a Health Insurance Plan is one of the best ways to meet health needs of elderly and the rest of the population. Basic research for ailments of aging is necessary. Home care and provision of help for relatives of those suffering from Alzheimer's Disease are of primary importance of the elderly at present.

Sylvia Aronowitz
Brooklyn, New York

Hearings should be held throughout the country at regular intervals where the members of the public are invited to testify. We seniors want to and should participate in all matters regarding aging and the elderly. Such hearings of the Committee on Aging should be publicized widely so that great numbers of our entire population can attend. Aging problems affect all citizens of all groups. Today's "Hearing" is outstanding -- we can learn so much from other countries.

Bianca L. Rosenberg, J.D.
New York, New York

The nursing profession offers the capability and know how to give comprehensive health care to the majority of persons over 65 years of age who are healthy or not in need of medical or surgical intervention. Nursing's holistic approach to care of the aging is more advanced in theory and practice than that of medicine and can be delivered in a cost effective and humanistic way. Consideration should be given to the full range of nursing care that is needed and available.

Doris Wardell
Philadelphia, PA

I feel very strongly about the ADEA not insisting that older people be productive as long as they are able to be productive. Something should be done about the private sector in this respect such as placing a ceiling age of 70 years on productivity. Since the Federal government has removed restrictions, the private sector should be made to do the same. I hope to see future policies on aging removing age limits on when the elderly can work and be productive if they wish.

Gloria Elaine Edwards
Bronx, New York

Much has been said at today's hearing about the increasing numbers of elderly in various nations, what is planned to change attitudes of persons under age 65 (if it's a problem) regarding the elderly? What plans do they have for "optional retirement?"

In my view, if the quality of life for the elderly in this country is to improve, stigmatization needs to cease and those who wish to continue working past 65 years of age should be able to do so and not be forced into retirement.

Joyce M. Labordem Ph.D., R.N.
Grand Forkes, ND

There are innumerable useful and productive roles for the aged in America. A 90 year old neighbor of mine fries chicken for us (a professional couple) and watches our house all day while we're gone (from her window), and we in turn perform a variety of small services for her. It occured to me that the hectic lifestyles of today's working young could mesh with the abilities and interests of older people in many ways. I've contemplated an idea (like babysitting, but really an exchange of services) but don't know quite how to get it started. Would be interested in information on anyone who has. (This needn't be a federal program).

N.S. Kilpatrick
Arlington, VA

Public, professional and Government attention on the needs of aging populations is important and programs to address them by medical and social services should be improved. However, these problems should be considered together with the needs of all age groups. There should be a continuity of access to medical care, adequate housing and income maintenance, including all who need them instead of attempts to abruptly aid people when they reach age 65. As Dr. Svanborg pointed out, there is evidence that for many a long history of healthful living conditions is a factor in successful aging.

Rhoda Lyman, MPH
New York, New York

Need to introduce knowledge about the aged in our educational system long before students decide to specialize in geriatrics and gerontology and other specialty fields. American society is deeply lacking the ability to cope with the reality of life, i.e. we all, if we are lucky enough, will get "there."

M.F. Laezza-Moggiol
New York, New York

At one time the elderly were respected and looked upon as a great wealth of information and life experience. Today, unfortunately as one grows older and older they retreat into their homes afraid to go out because of abuse and crime. We should start focusing on education of the younger generation to use and respect the older person. The older person is becoming a "recluse" instead of the healthy and informative person that they should be.

What research are we doing in this country or in the world which tests effects of drugs and alcohol on the elderly?

Josephine Underwood
East Orange, New Jersey

The study of gerontology should be included in the educational system. Since, as the meeting stressed, aging is a major problem of the future, training should begin early. Many existing long term care centers are staffed by persons with no background in the study of aging. Often times this lack of understanding shows itself in the treatment of the elderly. The media should be encouraged to put less emphasis on youth and more research into the science of aging. The Government should spend more on education, research and less on military aid.

Pauline Mayr
Cornwall, New York

The quality of medical care is dreadfully poor, especially for older people. An incentive for people to go on living after a spouse dies. Alienation and loneliness is rampart for those left alone, together with illness reduces the quality of life and the will to live. Society must be educated to nurture and try to understand the emotional needs of the older person -- to make life more interesting and to know that the older person has feelings too.

Mrs. L. Bobrow
Bronx, New York

Education appears to be the key to understanding and accepting aging.

I believe if our nation is to achieve positive attitudes about age we must begin w'th education of aging on the grade school level. I would have liked to ask the international panel if their countries have any formal education on aging in their school system. The U.S. must also get involved and encourage educational programs for our young people.

Mrs. Mary K. Dillon
Williston Park, New York

What impact is anticipated on the U.S. health care system (acute and LTC) as a result of its movement toward high tech/low touch at the same time U.S. society configurations have realized an increase in single-parent/transient family supports?

Mary Ann McGinley
Fort Washington, PA

The need for longitudinal multidisciplinary studies on aging is great. Several allied health professionals who play a major role in providing services to the aged population are not mentioned when listing professional components of a gerontological team (specifically Speech-Language Pathologists/Audiologists). I would like to see more involvement of these allied health professionals on advisory boards, multidisciplinary teams, project proposal review teams, etc.

Dr. Cleavonne S. Stratton
Downingtown, PA

The stigma of psychiatric disorders haunts the elderly, as the young, and results in the deterioration of the elderly's well being. Specifically, somantic (medical) therapies administered by psychiatrists are denigrated by the current Medicare regulations limiting patient benefits to 62% of cost (and 5 or 6 visits),

compared to the usual 80% reimbursed to non-psychiatric physicians services. Recent modification of Medicare regulations to increase the allowable visits to psychiatrists treating Alzheimer disorder could be the model for the treatment of the elderly with non-psychotherapy modalities.

Dr. George Fulop
New York, New York

The significance of senile dementia particularly of the Alzheimer type is acknowledged by the international experts who testified today, It is clear that we should pursue research to find a cure. But here in the United States very little of the funds allocated to the study of Alzheimers is targeted for the development or provision of Therapeutic Recreation Services which can maintain the Alzheimer victim in the day care or institution. Activities used at J.H.H.A. have improved quality of life for such patients. Study of such programs could provide help while we await a cure.

Dr. Paula E. Gray
New York, New York

I am enthusiastic about attempts to provide as much home care as possible to the elderly. However, after a recent experience with home care in New York City (Human Resources Administration - Program Assistant Director), I was very concerned that many of the elderly at home were too sick to be there and also needed more qualified caregivers. Home attendants are not qualified to care for respirators or manage patients on multiple cardiac medications. Better guidelines are needed for home care and more qualified caregivers are needed as well.

Patricia Battle-Mutter
New York, New York

I would sanction an increased focus on rehabilitation of the elderly in institutional settings, including that of my own Congregation of the School of Sisters of Notre Dame.

A sedative state of mind and body is too often allowed and/or encouraged which eliminates all challenge to live to the fullest each day. The reverse develops: they die each day, physically, mentally and sometimes spiritually. Is over-medication also a part of the problem?

Sister Mary Agella, SSND
Wilton, Connecticut

My areas of concern are (1) Lack of incentives in the work place, with 3rd party payers, and culturally to promote or maintain health in all age groups which will eventually impact the health of the aged. (2) Continuing focus on disease rather than health. (3) Lack of reimbursement for keeping aged at home - to get reimbursement the aged must be institutionalized. (4) Ageish attitude - particularly with health care professionals.

Marjorie V. Goff, RN, M.S.H.E.
Winston Salem, North Carolina

I am concerned with the disintergration of the traditional nuclear family and the impact it has on public policy.

I am a social worker for public housing in New York City. Often I am involved with those individuals who do not have natural support systems intact. What are projected future statistics for those living alone and future plans for their care.

Ms. Peggy Brady
New York, New York

There is a general reluctance to reimburse unorthodox or new modalities in the care of the elderly. In the facility where I am a staff member, Morningside House, we do a great deal of group work with the elderly. Groups are an effective therapeutic medium for elders but we are not reimbursed as they do not fall into the traditional one on one, i.e. a communication group led by a speech therapist and comprised of persons with speech pathologies serves two purposes 1) to improve communication skills; 2) to act as a support for members. However, this can not be reimbursed. There needs to be more flexibility in the area of reimbursement and it could even result in cost reduction, as larger groups could be served and more rehabilitation achieved. Many of these groups are being led by nurses. Nurses are one profession whose educational background gives them a holistic view of the elderly. The quality of care is significantly improved when institutions or agencies employ gerontological nurses to coordinate the health team. Historically, before geriatrics was deemed a medical specialty, it was nursing that championed and advocated the cause of their elderly clients. Funding for gerontological nursing programs should be increased. These persons can be the primary health providers to the elderly population, especially in senior centers, respites, and other non-occupant programs.

I feel you should include nurses in any future hearings on future planning for elderly health care. We have a lot to say!

Elaine Amella, RN
Yonkers, New York

I'm enjoying this Committee hearing so much sponsored under your leadership. As we learn that the aging around the world in universal and normal process of getting old, we also have to learn that they are unique individuals with different cultures, customs, language and somewhat different support systems. Since our elderly Americans are either descendants of various ethnic immigrants or first generation immigrants themselves, our programs should be diversified accordingly to meet their needs, especially for ethnic minority elderly such as Hispanics, Asians, and American elders. When we look at just the forest, we often ignore the differences of individual trees. Congratulations for your successful meeting.

James Y. Koh, Ph.D.
Tallahassee, Florida

In response to comments and questions from members of the audience on how to cope with aging as an "unbearable burden" .... public libraries can help here. They can promote books which publicize work in gerontology through annotated bibliographies, through author interviews of worthwhile books, they can provide guidance through circulation of books geared to help prevention of arteriosclerosis, etc. -- through encouragement of finding one's identity in arts and second careers.

Mollie W. Kramer
Bronx, New York

Macular Degeneration of the Retina - the dry, diffuse kind, not the moist, concentrated variety - is the greatest single cause of blindness in the U.S.A., if not in the world, etc. I have been unable to locate any research, dedicated to a viable solution. For people not candidates for laser surgery, the ultimate result is blindness.

Since this deterioration occurs mostly in senior citizens, it would seem appropriate for the U.S. Senate to promote superior research in the area. I am very interested in the elderly - being a senior citizen myself - and concerned.

Dora McKay Kerr
Nultey, New Jersey

I would like to hear more about health policy in other countries, more specifically as it relates to national insurance, and how it impacts on the geriatric population - their general health and functioning.

I have been a social worker working with a geriatric population at Mt. Sinai Hospital, for 5 years, and now will be entering the legal profession. Our present medicare coverage for the elderly does not adequately meet their needs, as it does not pay for preventative outpatient care or long term "chronic care", whether in the home or institutions.

Lisa Fischel-Wolorick, ACSW
New York, New York

It appears that Denmark, England and Japan are doing better than the U.S.A. in providing a complement of services which I refer to as the LTC continuum; beginning, as it should, with the support services which help the elderly (and/or disabled) remain in their own homes as long as possible.

The emphasis on extending the life span has no appeal for me. Maintenance of functional capacity - physical and mental - has a vast priority. A research concern on the aging process, the ability to distinguish between pathology and too much maturity is most important. As our proportionate numbers increase, our employment and employability must be sustained. We must be contributors, not burdens. I vote for INDEPENDENCE, DIGNITY AND PURPOSE for all our years! Thank you for your interest and caring, Senator Glenn.

Clarice Jones
Lansing, Michigan

How can we claim to foster the rehabilitation of the ill elderly when medicare regulations are consistently decreasing entitlement to rehabilitation services? For instance, a person coming home from the hospital is not entitled to skilled therapy unless they have a neurological/muscular/skeletal diagnosis. This regulation ignores the decreased activity tolerance caused by illness and hospitalization. Project "OPEN" by Mt. Zion Hosptial in San Francisco has demonstrated that increased services at home prevent further illness and deterioration and result in great economic savings as well as humanitarian ones.

Susan M. Johnson, R.N.C., M.S.
East Setauket, New York

Nurses and nursing services are the backbone of the service delivery system for the elderly therefore it is extremely important that they be involved in deliberations about how services are delivered to the elderly. It is important that they be educated in all aspects of care for the elderly, and it is important that they engage in research related to maintenance of health maximization of functioning, optimization of quality of life and comfort and care of the dying elderly.

Linda Kaeser RN, ACSW
Chicago, Illinois

Concerning budget cuts; as a recent Gerontology graduate, I have found it discouraging that though there is a need, many facilities cannot hire due to budget cutbacks.

Education and research are vital to the future of this country and I agree with (Senator Glenn's) your comments on this area.

Mary Center
Garden City Park, New York

Shouldn't we be trying to reach out to other countries -- particularly the Soviet Union - more frequently and systematically in addressing the problems of aging? A small step is made by the kind of sharing of views we have seen today. Aging, along with so many other problems is truly a global concern and, as a member of the Brookdale Foundation Board, I look forward to learning more about cooperation among nations in this sphe e.

John Winthrop
New York, New York

Where is the on-going, monitored health care available for persons 60 to 65 who retired, receive low social security and are ineligible for medicare because of their age group and ineligibility for medicaid? These people are unable to secure this or any other care other than "Emergency Room Treatment" in Bellevue. Care which not only would improve and maintain their physical condition but would/could detect and prevent future problems of a serious nature which would be costly to the person and to the social service/health delivery systems.

Robert T. Smith
New York, New York

APPENDIX 3

Acta Med Scand 1985; 218: 5–17

REVIEW ARTICLE

Comparison of Ecology, Ageing and State of Health in Japan and Sweden, the Present and Previous Leaders in Longevity

ALVAR SVANBORG, HIROSHI SHIBATA, SHUICHI HATANO and TOSHIHISA MATSUZAKI

From the Department of Geriatric and Long-Term Care Medicine, University of Gothenburg, Sweden, Tokyo Metropolitan Institute of Gerontology and the Institute of Public Health, Tokyo, Japan

For several decades the Swedish population has lived longer than any other nation in the world. During the last 5 years the populations in Norway and Iceland have approached similar longevities. The rate of increase in longevity has, however, been much faster in Japan than in any of the Nordic countries since the 1950s. Available statistics show that the Japanese people will have passed the Nordic countries in 1983 and will thus take over the position as the country with the highest longevity in the world.

Population registers have existed and functioned adequately both in Japan and Sweden for at least 100 years. The aim of the present study was to try to compare some ecological factors (nutrition, smoking, alcohol consumption, profession-related risks, family structure and general standard of living) known to influence ageing and health in Japan and Sweden in order to illustrate possible causative relationships to longevity, as far as can be judged from register data available at present and obtained through epidemiological studies of health and ageing. This analysis is also aimed as a basis for the planning of future comparative studies of ageing and health in the two countries.

DEMOGRAPHY

In 1977 the longevity of Japanese males reached the same level (about 72.5 years) as that of Swedish males. Since then their longevity has increased further and was reported to be 74.2 years in 1982, while in Sweden it has remained fairly constant. This constancy of longevity in Sweden has been accompanied by an increased mortality mainly from cardiovascular disease in middle-aged men, balanced by a decreasing mortality rate mainly at younger but also at older ages. In Japan, on the other hand, the mortality rate due to myocardial infarction has been rather constant in males or has presented a declining trend in recent years.

In females, the longevity reached the same level (about 79.1 years) in Japan as in Sweden in 1980. In 1982, the longevity of Japanese females had markedly passed that of Swedish females (79.7 years in Japan, 79.2 in Sweden). It means that the increase in longevity, which for at least 3 decades has been more rapid in Japan, is clearly continuing. The most rapid increase in longevity in Japan occurred in 1947–52, being no less than 11.8 years in males and 11.5 years in females during this period. Earlier during this century the rate of increase had been rather similar in the two countries but from that period onwards the Japanese rate has been much higher (Fig. 1).

Both in Japan and in Sweden, an increasing gap between the longevity curves of the two sexes has become obvious since 1950 (Fig. 1). In Sweden this difference is due to an

Key words: national comparison, ageing, morbidity, mortality, longevity.

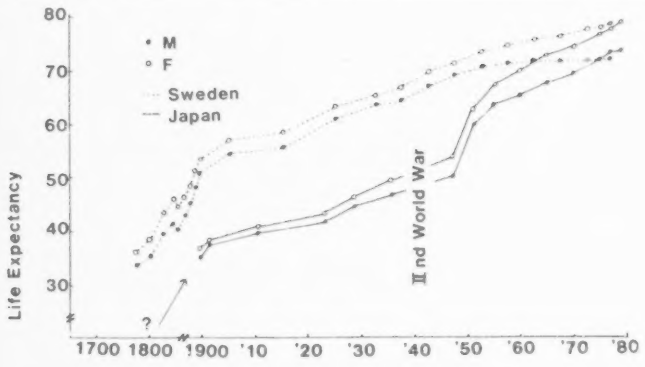

Fig. 1. Secular trends of life expectancy in Japan and Sweden. Based on data from United Nations: Demographic Yearbook.

almost constant male longevity since 1960 and a rather constant ongoing increase in female longevity. In Japan, the period of most rapid longevity increase, 1947–52, showed a similar rate of increase in both sexes, while since 1952 females have increased their longevity faster than males.

The average age-adjusted death rate showed a markedly faster decline in Japan (Fig. 2). In 1950 it was almost three times higher in Japan (60.1‰) than in Sweden (21.0‰), in 1960 about twice as high (30.7‰ versus 16.6), while the differences then became smaller (in 1970 13.1 versus 11.0‰ and in 1978 8.4 versus 7.8‰). The most pronounced decrease in infant mortality in Japan during this century occurred between 1947 (76.7‰) and 1952 (49.4‰). Infant mortality rates in the two countries definitely seem to have converged in 1982.

Further life expectancy in old age seems to have reached approximately the same length in Japan and Sweden only very recently. In both countries it is now about 10.7 years for 75-year-old females and about 8.5 years for 75-year-old men. Compared to 1950 this means an increase by 2.6 years for females and 1.9 years for males at age 75 in Japan and by 2 and 0.5 years for the two sexes in Sweden. The very rapid ongoing increase in further life

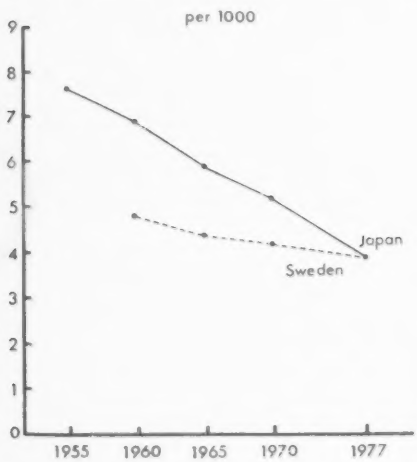

Fig. 2. Total age-adjusted death rate per 1000. Based on data from WHO: World Health Statistics Annual 1980.

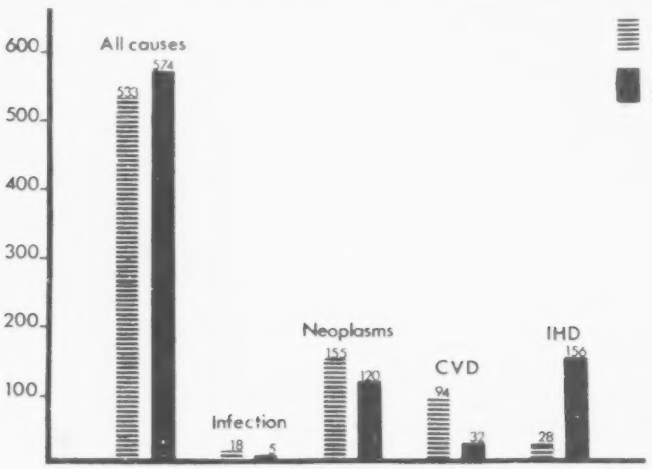

Fig. 3. Death rates of middle-aged men (45–54 years) per 100 000. Based on data from WHO: World Health Statistics Annual 1980.

expectancy in Japan can be exemplified by the fact that between 1981 and 1982 at age 75 the extension was 0.24 years for males and 0.34 years for females.

Thus, a comparison between Japan and Sweden shows that further life expectancy at, e.g., age 75 was shorter in Japan up to about 1982 when it became almost identical in the two countries. Official infant mortality statistics show a similar convergency between the two countries in 1982. The obvious conclusion seems to be that the more rapid increase in longevity in Japan is mainly due to a lower death rate compared to Sweden in the age interval 1–75.

At the present time the 65+ constitute about 10% of the Japanese population but as much as about 17% of the Swedish. By the year 2000 about 16% will be 65+ in both Japan and Sweden, and by 2020 both populations will include >20% aged 65+.

CAUSES OF DEATH

Fig. 3 shows the death rates of middle-aged (45–54 years) men in Japan and Sweden in 1976. In both countries the percentages of all deaths are low in this age group. The somewhat lower total death rate in this age group in Japan (5.33‰) compared to Sweden (5.74‰) is apparently mainly due to a lower ischaemic heart disease mortality rate in Japan (0.28‰) than in Sweden (1.56‰). On the other hand, mortality caused by infectious disorders (18 versus 5‰), neoplasms (1.55 versus 1.20‰) and cerebrovascular diseases (0.94 versus 0.32‰) was higher in Japan than in Sweden. The incidence of myocardial infarction has increased slightly in Sweden during the last decade but has been almost constant or slightly declining in Japan, judging by death rate data. No systematic studies have been performed in Japan on the incidence of myocardial infarction in representative population samples.

Fig. 4 shows a marked ongoing decline in Japan in the incidence of fatal cerebrovascular disease. Fig. 3 shows, however, that in 1976 this death rate still was 3 times higher in Japan than in Sweden.

The National Survey on Circulatory Disorders (1) includes ECG registrations of 73.8% of males and 84.3% of females from random samples (originally sampled 13 771 individu-

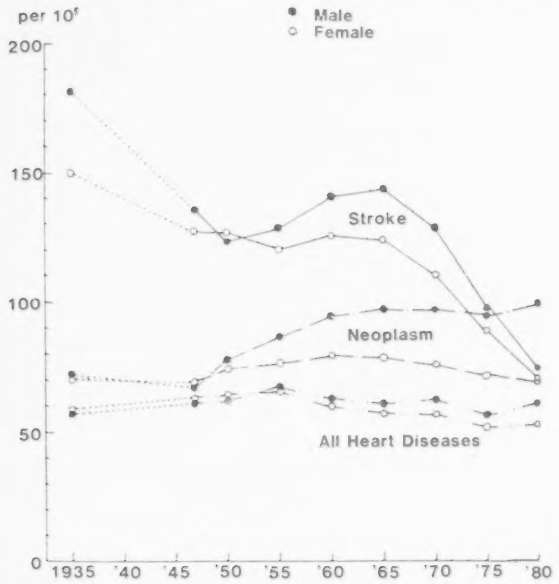

Fig. 4. Age-adjusted death rate in Japan. Based on data from Japanese Ministry of Health and Welfare: Vital Statistics Japan.

Table I. *Death rates per 100 000 according to cause of death from certain neoplasms in Japan and Sweden in 1980*

Neoplasm		Japan	Sweden
All	Total	138.4	245.7
	♂	162.6	261.6
	♀	114.9	230.0
Stomach	Total	43.1	19.9
	♂	53.7	23.3
	♀	33.0	16.5
Lung	Total	18.2	29.3
	♂	26.9	44.5
	♀	9.9	14.4
Breast	Total		18.2
	♂		0.5
	♀	7.0	35.7
Colon	Total	6.8	20.9
	♂	6.7	20.3
	♀	6.9	21.3
Rectum	Total	5.9	10.1
	♂	6.8	11.1
	♀	5.0	9.1
Uterus	Total	6.1	8.0

Adapted from WHO: World Health Statistics Annual 1982.

als) from 300 Japanese districts. The ECGs were coded according to the Minnesota coding system. The prevalence of "normal", "slightly abnormal" (Q2) and "abnormal" (Q1 or Q1+2) showed figures very similar to those observed in a previous survey in 1971–72. The prevalence of Q waves 1.1+1.2 was about 3% in males and 1% in females in the age group 70+. The corresponding figures in the Gothenburg study were 5 and 9% in males and 2 and 6% in females at ages of 70 and 75, respectively. In the Koganei study in Japan (2), Q 1.1+Q 1.2 were found in 2.5% of males and 0.4% of females at the age of 70 and in 5.8% of males and 0% of females at the age of 75.

Available statistical data from 1980 show rather different death rates from malignant diseases in the two countries. The only common cancer form that was more widespread in Japan was stomach cancer which occurred more than twice as often as in Sweden (Table I). In both countries there is an obvious sex difference with a higher death rate in males from lung cancer, cancer in the oral cavity and pharynx, oesophagus, stomach, liver and urinary bladder but not from colon carcinoma.

RATE OF FUNCTIONAL AGEING

In general, very few data on age-related changes in organ functions are available in Japan, while such data are at present accumulating in Sweden (3, 4, 5). A few comparisons will be made in this context.

In both countries there is an obvious rise in systolic and to a certain extent in diastolic blood pressure with increasing age up to the age of about 50 in males and 70 in females. Cross-sectional comparisons in Japan (Table II) show a lower BP in females but a faster rise with age and similar pressure levels at age 70+. A study in the Tokyo Metropolitan homes for the elderly might, however, indicate that at least females aged 70–80 have in fact higher systolic and diastolic blood pressures than males in these homes.

Three population studies in Gothenburg, Sweden (6) have shown similar age-related trends but higher blood pressure levels in females than in males at ages above 60. Thus, in

Table II. *Systolic and diastolic blood pressure (mmHg) by sex and age in Japan*

Age group (y.)	Total		Male		Female	
	Mean	SD	Mean	SD	Mean	SD
	Systolic					
30–>70	135.8	21.7	138.3	21.0	133.9	21.9
30–39	123.5	14.7	127.9	14.6	120.1	13.8
40–49	132.0	18.6	134.5	18.6	129.9	18.3
50–59	139.8	20.8	141.3	20.9	138.7	20.6
60–69	146.9	22.0	148.1	21.6	146.0	22.3
>70	152.8	23.7	153.9	22.8	152.0	24.3
	Diastolic					
30–>70	81.3	12.4	83.5	12.4	79.6	12.1
30–39	76.4	11.1	79.4	11.1	74.1	10.6
40–49	81.5	12.0	84.1	12.2	79.5	11.4
50–59	84.1	12.3	86.0	12.8	82.7	11.8
60–69	84.4	12.2	86.0	12.2	83.2	12.1
>70	82.7	12.6	83.4	12.3	82.1	12.7

Adapted from National Survey on Circulatory Disorders, 1980. Ministry of Health and Welfare (Koseisho), Japan 1983.

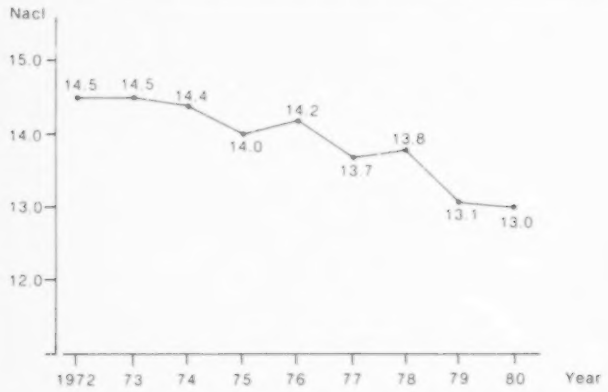

Fig. 5. Changes in average NaCl intake per capita per day in Japan (1972–80). Based on data from Japanese Ministry of Health and Welfare: The Japanese National Nutrition Survey.

Sweden, these age-related pressure lines for the two sexes intersect at an age of about 60, but in Japan possibly not until 10 years later. It should, however, be emphasized that available Japanese data refer to 10-year age groups and the Swedish to one single age group each. Furthermore, the Japanese data do not indicate to what extent people on BP-influencing drugs were included in the survey material.

In Japan, 11% of males and 14% of females aged 50–59, 23% of males and 26% of females aged 60–69 and 31% of males and 33% of females aged 70+ are reportedly treated with BP-lowering drugs (1). In Sweden, 8% of females and 2% of males were on such drugs at the age of 50, 20 and 10% at the age of 60, 30 and 13% at the age of 70, 39 and 17% at the age of 75 and 39 and 19% at the age of 79, respectively (6). These data indicate that the prevalence of treatment with hypotensive drugs in Japan is higher in males but similar in females. In Japan, there is obvioulsy less difference between the two sexes.

Thus, blood pressure in males is lower in Japan than in Sweden, but the prevalence of treatment with hypotensive drugs is apparently equal or even higher. The incidence of e.g. cerebrovascular disease is, however, higher in Japan than in Sweden.

It would be of interest to find out the proportion of patients with cerebral haemorrhages among cerebrovascular deaths. During 1961–64, 1965–68 and 1968–71, a systematic autopsy study of 80% of deaths was performed in Hisayama, Japan. Although the material studied was rather limited, it seems to indicate that about 30% of the cerebrovascular deaths were caused by haemorrhages compared to 70% cerebral infarctions (thrombosis, emboli and malacia).

The cholesterol level in plasma increases with increasing age up to about 70 years, and the serum cholesterol level in Japanese is reported to be about 5.1 mmol/l in males and 5.7 in females. The 70-year-olds in Gothenburg showed a plasma cholesterol level of 6.2 mmol/l for males and 7.0 for females. In Japan, the analyses were made by an enzymatic method and in Sweden by gas-liquid chromatography. Previous comparison between these two methods indicates that enzymatic determination of total cholesterol gives 2% lower results than gas-liquid chromatographic analyses (7).

Age-related changes in blood sugar are difficult to compare as long as the nutritional condition at the time of sampling is not always known and analytical methods are liable to differ. It seems obvious, however, that the blood sugar level increases with advancing age in both sexes at least up to the age of 70 both in Japan and Sweden and seems to be higher in males than in females in both countries at adult ages and at least up to the age of 70. The fasting blood sugar level, e.g. at the age of 70, seems to be rather similar in the two

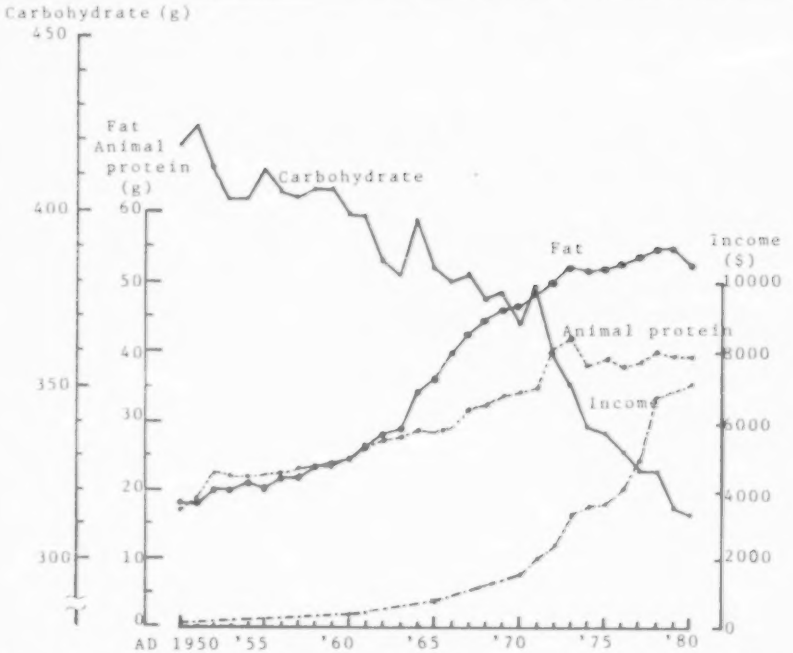

Fig. 6. Changes in nutrient intakes and income per capita per day (1950–80). *From* Japanese Ministry of Health and Welfare: The Japanese National Nutrition Survey.

populations, although available data might indicate that it is somewhat lower in the Japanese population (8, 9, 10).

In this context the differences in height and body mass between the two populations must be considered. Height and body weight were measured in 1976 in 70-year-olds in two urban areas, namely the Koganei area of Tokyo (2) and Gothenburg, Sweden, as a part of the longitudinal study of 70-year-olds (8). The average Japanese measures were 160 cm and 53 kg for males and 145 cm and 47 kg for females. In Gothenburg the average height of the second age cohort of 70-year-olds studied in 1976/77 was 174 cm for males and 161 cm for females, and the body weight was 79 kg for males and 66 kg for females. The mean relative weights (Quetelet's index) for 70-year-olds in Japan were, thus, at that time 212 for males and 224 for females and in Sweden 254 for males and 251 for females. A comparison of 70-year-olds shows that both in Japan and Sweden there are ongoing cohort differences in height and body mass. Between 1971 and 1976 the body height of 70-year-olds in both populations increased by 1–1.5 cm.

LIFE STYLE AND SOCIAL SITUATION

The two populations have very different nutritional habits. In a historical perspective the Japanese diet has been very low in fat, rather low in protein and thus very rich in carbohydrate. Salt intake has been very high, especially in the rural areas where average values of 15 g/day have been commonly observed. Salt intake has declined (Fig. 5) and protein and fat intake has increased gradually (Fig. 6) in the past 10 years. Intake of meat is

still rather low compared to most European industrialized countries including Sweden. No such marked changes in dietary habits as in Japan have occurred in Sweden in recent decades.

Tobacco smoking has been and still is very common, especially among males, in the two countries. The average daily consumption of cigarettes is still increasing among males as well as females in Japan. In the Koganei study, 54% of the males and 36% of the females aged 70 were smokers, 29 and 16%, respectively were ex-smokers. Available data show that the prevalence of smokers declines with age in Japan. The average consumption of cigarettes per year in Sweden has increased six-fold between 1920 and 1975. Recent studies indicate a tendency towards decreasing smoking with increasing age also in Sweden (11). Of 70-year-old males, 50% were smokers in 1971/72 and 36% in 1976/77 and 33% and 34%, respectively, were ex-smokers. In these two 70-year-old cohorts, 13.5% of the females were smokers. 80% of the males were inhalers and almost all had smoked for more than 20 years, the majority since the age of about 18. Among female smokers the debut age was about 30 years.

Alcohol habits, defined as officially known consumption of pure alcohol in grams per inhabitant, are at present similar in both countries. As far as the prevalence of alcohol abuse is concerned, no data exist which allow a reliable comparison. Obviously, significant alcoholism has never been a serious problem in Japan, probably due to the well known fact that about 50% of the Japanese are more sensitive to alcohol than most other populations due to differences in liver enzyme activities. Many Japanese are therefore said to get happy and easily drunk on very small quantities of alcohol (12).

Rates of death caused by liver cirrhosis are difficult to compare since the registers in Japan do not distinguish between cirrhosis due to hepatitis and alcohol. A negative influence of alcohol abuse on health is common in Sweden. Recent studies indicate that alcohol consumption with a negative influence on certain manifestations of ageing is also common in Sweden (13).

Previous studies have shown that loneliness influences subjective health, consumption of medicines and requirement of social support (14). Several studies have demonstrated a relationship between marital status and longevity (15). In Japan, the age-adjusted average mortality rate in 1980 was 17.84‰ for never married males, 16.25‰ for widowers, 15.65‰ for divorcees and 6.41‰ for those still living together with spouse. In females the corresponding figures were 11.30, 7.30, 5.40 and 3.52‰. Recent Swedish studies have shown that the life expectancy, e.g. at the age of 50, was markedly different according to marital status. Widowers had a 48% higher mortality rate during the first 3 months of bereavement and 3 years shorter further life expectancy compared with those still living with a spouse (15).

Figures illustrating the housing conditions in the two countries are not always available for exactly the same years. The average number of people in one household was 3.3 in Japan in 1980 and 2.4 in Sweden in 1975. The average number of rooms per household is rather similar; 4.5 in Japan in 1978 and 4.0 in Sweden in 1975. In 1979, the average size of homes was 91.4 m^2 in Japan and 114.0 m^2 in Sweden.

In 1980, 70% of 65+ in Japan were reported to be living and sharing households with their children. The proportion of old people living separately from their children is, however, increasing. Official data show that in 1953 69% and in 1971 51% of those aged 50–59 wished to live with a married child. In urban areas, especially among people with high educational and economical standard, the separate way of living seems to be increasing quite fast. In Sweden, only about 4% of the elderly live with their children. In the Gothenburg study, 44% of females and 18% of males were living alone at age 70 and 55% of the females and 21% of the males at age 75. Although the percentage of single elderly

persons (widows + divorcees and widowers + divorcees) is rather similar in the two countries, they rather seldom live alone in Japan. At age 70, only 4% of the males and 11% of the females were living alone in 1976 and at age 75, 1.3% and 10.4% of the same age cohort followed longitudinally were reported to be living alone.

OCCUPATION AND RETIREMENT

In both countries, different professional groups have different longevities. In Japan, miners, farmers + fishermen and merchants have the shortest life expectancy, and guardians + policemen + military people, white collar workers and manual skilled workers the longest. In Sweden, sailors, restaurant workers and journalists have the shortest life expectancy, and farmers, skilled manual workers and priests the longest (16).

Working hours in Japan are 44 per week, usually 40 hours on Monday–Friday and 4 hours on Saturdays. In some big industries the 44 hours are concentrated to Monday–Friday with Saturdays free. Civil servants work only 3 Saturdays per month. In Sweden, working hours are at present officially 40 with Saturdays and Sundays free. Paid vacation days are in Japan 8–20 per year with the exception of, e.g., university teachers who have one month's vacation. University students have 2 months' summer vacation. In Sweden, the paid vacation period has successively increased over the past decades from 3 to 5 weeks and increases with age for civil servants. University students are usually free for two months in the summer. The number of official holidays is rather similar in the two countries (11–12 days). It is a custom in Japan to have paid vacation also during Dec. 29–Jan. 3, only one of these days being an official holiday.

Retiring age has been about 55 in most Japanese companies, but has been successively extended and is now 55–60. In 1980, 40% of those with a fixed mandatory retirement for all employees of a firm retired at/or before age 55, 20% at 55–59 and 40% at 60 (the vast majority) or above. Out of enterprises with more than 30 employees, no less than 80% had in 1980 a fixed mandatory retirement. Women often retire before these ages.

In most industries the pension system does not become operative until age 65. Many workers, therefore, have to find another job for economical reasons at ages of 55–60–65. Civil servants, by contrast, have received pensions from age 60 for several decades. Generally, the pension received by this average person in Japan is not sufficient for a reasonable standard of living. Figures derived from the collections of international comparative statistics in Japan in 1981 show that in 1980 no less than 41% of males 65+ still were working. In Sweden, this figure has been around 10% at least since 1975. The basic retirement pension in Sweden is sufficient for a reasonably good standard of living. Many employees in Japan, whether blue or white collar workers, receive a special retirement bonus, which can be of great importance for their future economic standard. This bonus system varies from one industry or organization to another but is totally lacking only when a firm goes bankrupt.

The Swedish social security system has recently been described in detail (17). The first general old-age pension insurance scheme was introduced in 1913.

PENSIONS

The amounts of Swedish pensions were in 1913 dependent on the contributions paid in. A national basic pension with guaranteed basic benefits was introduced in 1935. Through the reform of 1946, general retirement allowances were instituted which gave the individual a basic means of livelihood. A decisive step in the development of social insurance was taken in 1959 when the national supplementary pension scheme was introduced. This

scheme has been systematically and successively extended to give all citizens economic security in their old age.

The reported rate of suicides and self-inflicted injuries per 100 000 was in 1980 rather similar in Japan (17.6) and Sweden (19.4). For the age groups 65–74 and 75+ it was higher in Japan (37.8 and 65.4) than in Sweden (26.0 and 26.0). The rate of suicides per 100 000 is higher among Japanese females than among Swedish females both in the 65–74 (35.5 and 14.5) and 75+ age groups (60.2/100 000 Japanese females compared to 11.4/100 000 Swedish).

Accidental falls leading to death were much less commonly reported in Japan (3.8/100 000) than in Sweden (20.3/100 000). In the 65–74 age groups they were not only much more common in Sweden (22.3/100 000) than in Japan (9.7) but also showed a sex difference with a male predominance in Japan (males 15.1, females 5.4) but a female in Sweden (females 28.0, males 17.4). In the 75+ age group the rate was 242.7 in Sweden and 44.6 in Japan, but at that age females predominated in both countries. Among the 65+, the "old" olds (≥85 years) constitute 14% in Japan and 18% in Sweden. Therefore, the much higher rate of fatal accidental falls cannot be explained only by the somewhat higher proportion of "old" olds in Sweden.

CONSIDERATIONS AND CONCLUSIONS

Even though registration of births and deaths has been functioning well in Japan for 100 years, possible gaps in Japanese birth records have to be considered. Childbirth at home is more common in Japan and early deaths might therefore be ignored more often (18). If that is the case, it would have influenced the absolute level of the longevity curves but not the trend towards faster increase in longevity in Japan than in Sweden. The dimension of what such shortcomings in the birth records might cause is illustrated by the following calculation (19). If the total infant mortality for boys in Sweden were reduced to zero, male longevity would have increased by only 0.6 years, and if the mortality during the first year of life had been twice as high as in 1978, male longevity would have diminshed by 0.6 years. The reason for the remarkable increase in longevity in Japan is not only a considerable decline in infant mortality but also a pronounced increase in further life expectancy at adult ages. Mortality statistics show a very marked decline in deaths caused by infectious diseases such as tuberculosis, which until 1951 was even more common in Japan than deaths due to cerebrovascular disease. The very marked and rather sudden increase in longevity in the Japanese population during 1947–52 seems to have been mainly due to a sudden improvement in the availability of chemotherapy and antibiotics after the very difficult first years following World War II. These advances in infection therapy obviously also influenced infant mortality that declined very markedly during 1947–52. As far as the general living conditions of the Japanese population are concerned, both nutrition, housing and hygiene were poor after World War II and remained so until about 1950, when the well known and dramatic improvement in the standard of living really started in Japan.

During World War II, 2.7 million Japanese people were killed, which may to a certain extent have shortened the life expectancy during that period. No reliable mortality statistics are available for the first two years after the war. To a certain extent the rather unusual situation for the population in Japan in 1940–47 might thus have also caused an unusually high death rate and consequently an exceptionally low starting point for the longevity curves in 1947. It should, however, be emphasized that other than environmental factors (including advances in medical care) must have played a dominant role in this very dramatic rise in longevity during 1947–52.

In most western countries, certain changes might have occurred in nutritional habits since 1950, but these changes have been rather limited compared to Japan, where marked qualitative changes have taken place within an almost unchanged energy intake level. Previous diet, dominated by a very high vegetable intake has been successively altered mainly through an increase in animal protein and fat. Simultaneously, the rather high salt consumption has declined, but only slightly. To what extent these dietary changes might explain the marked decline in deaths caused by cerebrovascular diseases in Japan is difficult to say. At the same time treatment with antihypertensive drugs has become very common. Recent studies of possible prophylactic effects of dietary protein on stroke should be mentioned in this context (20).

Comparison with Sweden shows that the Swedish population on average has slightly higher blood pressures, a similar prevalence of antihypertensive drug treatment but markedly lower incidence of cerebrovascular deaths. When comparing the two nations' blood pressure levels, it must be emphasized that the Japanese have considerably lower body mass than the Swedes, and that there is a significant relationship between body mass and blood pressure level.

A reliable report system for diagnosed malignant disorders and a central registration, the "Cancer Register", have been operating in Sweden for several decades. No such system exists in Japan but physicians are supposed to report diagnoses monthly to the register for insurance purposes concerning the insured population, covering nearly 100%. In both countries the autopsy frequencies are nowadays rather low, which obviously limits the reliability of the diagnoses stated in death certificates. Due to the cancer register system these data seem to be rather reliable in Sweden.

It seems reasonable to conclude that the much higher frequency of stomach cancer in Japan than in Sweden is real and cannot be explained either by different age distribution of the populations or by differences in diagnostic significance. Several hypotheses have been presented concerning a possible relationship between the Japanese diet and this very high prevalence of stomach cancer. Available epidemiological data comparing different areas in Japan indicate associations between the prevalence of stomach cancer and both economic and nutritional factors, but afford no real possibility of making statements concerning causative relationships. When comparing death rate figures, the possibility of different age distributions also within the 10-age-year groupings available in the world health statistics must be taken into consideration. Generally—as far as the oesophago-gastrointestinal cancer forms are concerned—the prevalences of only neoplasms in the oesophagus and in the stomach are higher in Japan. According to our evaluation, other differences in reported neoplasms causing death might be due to differences either in age distribution or in diagnostic routines. In the age groups 55–64, 65–74 and 75+ the reported prevalences of cancers of trachea, bronchus and lung causing death are rather similar in the two populations. These figures agree with the fact that the prevalence is also rather similar in the higher age groups in the two countries.

The frequency of death from myocardial infarction in Japan which is definitely lower than in many western countries and, moreover, constant up to age 3, has been attributed at least partly to nutritional differences. As mentioned above, nutritional habits have changed markedly and are still changing in Japan. These nutritional alterations have been considered to be responsible for e.g. a successively rising cholesterol level that, however, is still lower than in the Swedish population of a similar age. To what extent coming age cohorts with higher prevalence of smokers, as well as of smokers who have smoked for longer periods of their lives, will increase the prevalence of ischaemic heart disease also in Japan must at the present time be stated only as a very reasonable hypothesis.

The Japanese obviously work at least as much and as hard as the Swedes, and have

done so for many decades. The fact that farmers are the most long-lived occupational group in Sweden but almost the most short-lived in Japan is of obvious interest. To what extent working conditions, economical and nutritional factors or other ecological differences account for this difference in longevity between farmers in the two countries is at the present time difficult to say. The system for the selection of farmers has been that of inheritance by the oldest son both in Japan and Sweden. Those who live longest in Japan nowadays are policemen, who would generally be considered to run high risks of traumatic injuries and highly polluted air.

It might not be too much of a generalization to say that the standard of living as well as available quality of life nowadays is similar in the two countries. Recent evaluations (12) rank Japan with Sweden and Australia as the three industrialized democracies with the least spread in income between the rich and the poor. However, rather marked differences still exist in social traditions. The structure of a modern Japanese family does not differ much from the Swedish, with a birth rate at about the level needed for reproduction and population constancy. The survival of the stem family system is, however, stronger in Japan. But in families who can afford it, the retired parents tend to prefer living in their own homes. This situation reflects not only previous customs but also, at least to some extent, inadequate retirement pay and social benefits, which make the elderly in Japan more dependent on their children than in Sweden. Death rate related to marital status can in Sweden, as in other countries where it has also been observed (for a review see 15), be explained by homogamy, i.e. sharing of life styles. Obviously, Japanese widows and widowers also have a higher death rate than those still living together with a spouse. Several studies also showed that the most dramatic increase in mortality occurred during the first 3 months of bereavement, which indicates other risk factors than homogamy (sharing of life styles), presumably related to a sudden change in intellectual, physical and emotional activity. The risk of morbidity and mortality might be lower in Japan where such a high percentage of widowers and widows still live with their children and families after their spouse's death.

This study indicates that the main reasons why the Japanese people nowadays live longer than the Swedes are: 1) Lower total mortality from malignant diseases, although cancer of the oesophagus and stomach are more common in Japan. 2) Higher death rate from ischaemic heart disease in both sexes in Sweden, a death rate only partly counterbalanced by a higher death rate from cerebrovascular diseases in Japan. 3) Possibly also certain differences in the family network, which might lower the initial high risk of morbidity and mortality for old people who have lost their spouse.

Japan and Sweden are at the present time at a point of their histories where their longevity figures are still rather similar. If the longevity in Japan also in the future increases at a much faster rate than that of e.g. Sweden, longitudinal comparisons of ecology, ageing and state of health between the two countries must be of the utmost importance in illustrating not only environmental influence on ageing and health but also possible preventive/postponing measures in our populations.

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